

IN THE UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA  
AT HUNTINGTON

OHIO VALLEY ENVIRONMENTAL :  
COALITION, COAL RIVER MOUNTAIN:  
WATCH, WEST VIRGINIA HIGHLANDS:  
CONSERVANCY, and the SIERRA  
CLUB,  
Plaintiffs, : Civil Action  
: No. 3:08-cv-979  
v. :  
: Date: October 24, 2008  
UNITED STATES ARMY CORPS :  
OF ENGINEERS; ROBERT L. VAN :  
ANTWERP, Commander in Chief of:  
Engineers, U.S. Army Corps of :  
Engineers; DANA R. HURST,  
Colonel, District Engineer,  
U.S. Army Corps of Engineers,  
Huntington District,  
Defendants, :  
: HOBET MINING COMPANY, LLC, and:  
FOLA COAL COMPANY, LLC, :  
: Permittee- :  
Defendants. :  
x

TRANSCRIPT OF DAY 3 OF 3 OF A MOTION HEARING HELD BEFORE  
THE HONORABLE ROBERT C. CHAMBERS, JUDGE  
UNITED STATES DISTRICT COURT  
IN HUNTINGTON, WEST VIRGINIA

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Proceedings recorded by mechanical stenography;  
transcript produced by computer.

## INDEX

| <u>PLAINTIFFS'</u><br><u>WITNESSES</u> | <u>DIRECT</u> | <u>CROSS</u> | <u>REDIRECT</u> | <u>RECROSS</u> | <u>EXAMINATION</u> |
|--|---------------|--------------|-----------------|----------------|--------------------|
|--|---------------|--------------|-----------------|----------------|--------------------|

|                 |     |     |  |  |  |
|-----------------|-----|-----|--|--|--|
| Emily Bernhardt | 91  | 98  |  |  |  |
| Margaret Palmer | 100 | 106 |  |  |  |

| <u>DEFENDANTS'</u><br><u>WITNESSES</u> | <u>DIRECT</u> | <u>CROSS</u> | <u>REDIRECT</u> | <u>RECROSS</u> | <u>EXAMINATION</u> |
|--|---------------|--------------|-----------------|----------------|--------------------|
|--|---------------|--------------|-----------------|----------------|--------------------|

|                  |    |    |    |    |  |
|------------------|----|----|----|----|--|
| Richard Warner   | 4  | 25 | 57 | 67 |  |
| Andrew J. Miller | 79 | 90 | 91 |    |  |

| <u>PLAINTIFFS'</u><br><u>EXHIBITS</u> | <u>ADMITTED</u> |
|---------------------------------------|-----------------|
|---------------------------------------|-----------------|

None

| <u>DEFENDANTS'</u><br><u>EXHIBITS</u> | <u>ADMITTED</u> |
|---------------------------------------|-----------------|
|---------------------------------------|-----------------|

|   |    |
|---|----|
| 8 | 4  |
| 9 | 14 |

Richard Warner - Direct (Castle)

1 PROCEEDINGS had before The Honorable Robert C. Chambers,  
2 Judge, United States District Court, Southern District of West  
3 Virginia, in Huntington, West Virginia, on October 24, 2009, at  
4 9:00 a.m., as follows:

5 THE COURT: Good morning. All right. Are we ready to  
6 proceed?

7

8 MR. CROCKETT: Yes, Your Honor.

9 THE COURT: Doctor, will you please take the stand  
10 again?

11 Mr. Castle.

12 **CONTINUED DIRECT EXAMINATION**

13 **BY MR. CASTLE:**

14 Q. Good morning, Dr. Warner.

15 A. Good morning.

16 MR. CASTLE: Before I get started, I would like to  
17 submit Dr. Warner's resume'.

18 THE COURT: All right. Has it been marked? Should we  
19 mark it now?

20 MR. CASTLE: Fola 8.

21 THE COURT: Any objection?

22 MR. LOVETT: No objection.

23 THE COURT: It's admitted.

24 **DEFENSE EXHIBIT 8 ADMITTED**

25 BY MR. CASTLE:

Richard Warner - Direct (Castle)

1 Q. Dr. Warner, do you remember about where we left off  
2 yesterday? If I can cover just one issue on that, you were  
3 explaining the Forestry Reclamation Approach and we had started  
4 talking about the soil media and you'd explained the difference  
5 in the media and how you prepare the soil today as you did many  
6 years ago in forestry. Could you tell me a little bit more  
7 about the media itself and how it's placed?

8 A. Yes. I think Mr. Isabell did a nice job on that  
9 yesterday. What we're doing on the Forest Reclamation Approach,  
10 and although we're acting like this is something new that we did  
11 in 1996 as far as our first demonstration at Star Fire Mine, Dr.  
12 Don Graves, Dr. Jim Berger, others, have been doing things like  
13 this for over 30 years, but, basically, what we found is not new  
14 again.

15 What we do on that is basically, first, we will compact the  
16 soil beneath, very, very similar to what's been done for years  
17 and we have that compaction and above that compaction, soil.  
18 Later, we will place a layer of soil with a variety of different  
19 techniques, usually four to six feet deep, sometimes as deep as  
20 eight feet.

21 If it's a truck operation, the trucks will drop a pile, one  
22 next to it almost like a triangle, if you would, where the piles  
23 fall into each other and so it's like a row and the next row is  
24 offset by half a row and then you put in at least two -- on the  
25 job, sometimes they'll strike it off with a low ground pressure

Richard Warner - Direct (Castle)

1 dozer perhaps once, perhaps twice; but, again, leaving it very,  
2 very rough and that's one of advantages.

3 Other people put it down with dozers, but, again, it's not  
4 meant to -- there's no rubber tire vehicles. We're trying to  
5 avoid the compaction and what we have found is that that gives us  
6 a very nice media for plant growth; specifically, for tree  
7 growth, because it has the ability to infiltrate the water, has  
8 good water holding capacity, and it has a good porosity. So we  
9 get the exchange, a very good exchange, between water and air,  
10 which is required for good tree growth.

11 There's four other aspects associated with the forest  
12 approach, Forest Reclamation Approach. One of the other ones is  
13 a proper selection of trees.

14 Q. Let's stay with media right now.

15 A. Okay. Yes, sir.

16 Q. What's the purpose of -- I call it the hard pan, but the  
17 compacted layer below?

18 A. It's really multipurpose, depending on where we're doing  
19 this activity. You know, if we're doing it on basically just  
20 reclamation of mine lands, the purpose is basically a low  
21 permeability layer or a layer that basically has very low  
22 infiltration, if you would, and so as we have our loose soil on  
23 top, the rainfall comes down, enters, infiltrates at a fairly  
24 rapid pace, into this loose soil, migrates through that four- to  
25 six-foot layer, hits the hard pan and usually will be on a slope,

Richard Warner - Direct (Castle)

1 in all cases will be on a slope that I've dealt with, and the  
2 slope that we've looked at are from two percent up to a two-one  
3 slopes, a 50 percent slope.

4 And so a large range of slopes, but again, similar to what  
5 we're seeing at Fola, maybe not a two-one slope, but something a  
6 little bit less than that. The idea is that the water goes  
7 through the soil. Again, that moisture content for the tree  
8 growth, the remainder goes down, hits the hard pan. It migrates  
9 out to wherever we're directing it by our slope.

10 Q. What does that have any -- that infiltration and loose  
11 material, does that have any effect on the water chemistry?

12 A. Yes. What it basically is, if you would, yesterday we  
13 heard about perching of water tables and this is basically a  
14 man-made, if you would, perched water table. So water goes  
15 through, goes through the spoil, goes through the loose dump  
16 spoil, enters to the top hard pan, if you would, and then it  
17 progresses off to the direction and it usually will send to a  
18 stream and so what we're doing is feeding the stream that water.

19 Q. You heard the concept that conductivity is increased by  
20 the filling of the valley fills versus the filling of the back  
21 stack. Have you done any studies by the effects of conductivity  
22 by this approach?

23 A. Yes, we have. I would first like to put in perspective  
24 some of the data we keep hearing trial after trial. Basically,  
25 the data is predominately coming from the database from Office of

Richard Warner - Direct (Castle)

1 Surface Mining and people embrace that data and say, "Oh, we have  
2 very high conductivities coming in from the valley fills" and the  
3 fact is that data shows that we do and I expect that data is  
4 correct.

5 We've got to realize that how valley fills are built, and  
6 this is where it's helpful to have been on a mine, actually  
7 designed valley fills, and I'd like to give two different  
8 perspectives of that. What used to be done, and a lot of the  
9 data used to be just in the very recent history, where we'd have  
10 a valley fill. The surface was not highly compacted, somewhat  
11 compacted, but not like we're doing with the Forest Reclamation  
12 Approach. We obviously didn't have the loose dump spoil produced  
13 from our waters.

14 So, basically, we have waters moving through the cover of a  
15 valley fill. These valley fills may be 60 feet, 200 feet. I've  
16 worked on some that are 800 meters, but not in the States, and so  
17 the water goes into these. Also, we have some of the coal seams  
18 and so water is going in that way as well, and this is the other  
19 point I would like to make.

20 In previous construction of valley fills the mining  
21 community would take the high sulfur-producing materials and  
22 basically bury it in that valley fill. It was a standard  
23 technique for a number of years.

24 If we say, you know, why do we have conductivity coming out  
25 of valley fills, I think it's fairly simple. If we have water

Richard Warner - Direct (Castle)

1 going in from both rainfall infiltration, water coming in from  
2 the seeps, and we have sulfate-producing material that intercepts  
3 and, again, these are maybe -- say 200 feet deep would not be  
4 that unusual and so there's very low contact time and when we're  
5 talking about conductivity, we're really talking about dissolved  
6 solids and if we're looking at really what conductivity is, in  
7 our area it is sulfate, iron and manganese, but predominately  
8 sulfate, and so sulfate-produced materials, and so it is not a  
9 surprise, I think, to anybody that our conductivity values are  
10 high coming out of valley fills.

11 I would like to, in kind of contrast to what's going on more  
12 recently, and I think this is very recently, and perhaps Fola has  
13 been doing it for a longer time because they seem to be grabbing  
14 technologies and leading in technologies, by what the miners call  
15 "keep it high and dry".

16 What we're doing is basically taking those selected  
17 materials which are very easy to identify, by the way, and using  
18 them in our stack when we do like a high wall we heard about,  
19 basically stacking it and then compacting it later on top as  
20 well, and if we look at the data from those kinds of valley  
21 fills, we'll see it's going to be a lot less. We're seeing  
22 numbers as low as 500 to 600 and then to tie it to basically the  
23 Loose Dump Soil Approach, work with Dr. Edgar Reedis, we have  
24 plots that are acre plots with different kinds of spoil. Again,  
25 the typical spoils that we have here, the sandstone cap, which is

Richard Warner - Direct (Castle)

1 usually weathered; the gray sandstone, which is usually a layer  
2 down below. There's usually some thin shale layers as well.

3 So we have a mix of those with replicators because it's an  
4 academic exercise and, with that, we basically have measured the  
5 water quantity that's coming out and, also, we measure water  
6 quality and one of the constituents -- we did a full spectrum of  
7 metals, by the way, but one of the constituents we focused in on  
8 was conductivity and the numbers that we've seen, and this is  
9 over a two-year period, that for two of the spoil types that we  
10 end up -- we start out -- we were around 1,200. Again, this is  
11 probably not a surprise because it's newly dumped and it is sort  
12 of flushing through, if you would.

13 The next part of it is that over this two-year period that  
14 went from 1,200 down to 600. If we believe the values in, say,  
15 Brett Pond's work and those peoples' work, the impact is around  
16 600, 800, in that value. So we're down to those low values.

17 The other spoils start at 600 and stay at 600 and another  
18 one starts at 1,000 and stays at 1,000 and then most likely that  
19 one has some sulfur-fixing material.

20 Q. So you don't expect this method to have much impact on  
21 conductivity; is that fair to say, from what you observed?

22 A. What I'm saying, the results of our research to date has  
23 shown that within about a two-year period we're dropping down to  
24 500 to 600 conductivity.

25 Q. Of course, you reviewed the permit. Conductivity is not

Richard Warner - Direct (Castle)

1 a water quality, correct?

2 A. It's not in West Virginia, no, sir.

3 Q. Thank you. Let's go to the forestry side of it now. How  
4 does your forestry reforestation relate to the riparian zone?

5 A. It's used in a riparian zone as well. When we're  
6 reconstructing streams, I guess we're calling it stream creation  
7 here, we will have, going from the stream bank, if you would,  
8 again -- excuse me, compacted soils, loose dump spoil. Somewhat  
9 in the close vicinity of the riparian zone we'll plant -- we have  
10 different vegetation mix, as well as different tree mix and in a  
11 riparian zone, one of our focuses is to use some rapidly growing  
12 trees as well.

13 One of the projects that we did, again, this is on a  
14 landfill, not on a coal mine, but basically put in willows and  
15 willows just grew extremely well, which is no surprise. So we're  
16 trying to get fast-growing trees which will give us a shading  
17 operation and then we also put in a hardwood species as well.  
18 There's usually a progression of trees that are going from the  
19 flood plain through the riparian zone up into the higher areas  
20 and that's natural in the forested watersheds and we try to mimic  
21 that as well.

22 Q. Okay, thank you. Yesterday you told the court that the  
23 tree growth -- and I apologize. I'm a little bit under the  
24 weather and so if I get to where you can't understand me, just  
25 point at me.

Richard Warner - Direct (Castle)

1                   The tree growth was very rapid and you measured in height,  
2 but you said in probably ten years, you've got experience of a  
3 full canopy of 30-feet-high trees?

4                   A. Yeah, and this is just the Star Fire project. Again,  
5 we've had 42 tours and close to 1,000 people. In fact, the  
6 Director at Office Surface Mining, Brent Wahlquist, visited us in  
7 1996 when he first did it and again in 1998, and when we were  
8 driving back, he goes, "Richard," he goes, "this is what we  
9 should be doing." He goes, "this is going to be my legacy" and  
10 what he did is developed the Appalachian Regional Reforestation  
11 Initiative and just within the last two months, he came out and  
12 no matter what the switching of the government may or may not be,  
13 he's going to retire after this time and he wanted to see those  
14 trees one last time.

15                  We went to that same site and on that site we have some  
16 walking paths and on that site we had different techniques  
17 because it's a demonstration site and we're seeing trees that are  
18 25 to 30 feet tall.

19                  Q. So, well, I guess where I want to go, but you said it  
20 took a little bit of time during that interim time, I guess,  
21 from the time it's reclaimed to the time where those trees are  
22 getting to start to provide a canopy, what replaces the material  
23 that those trees provide to the system?

24                  A. Okay. We have actually a couple of options that we've  
25 looked at and it really depends on where we are in the mining as

Richard Warner - Direct (Castle)

1 well. Some locations, especially if it's a fairly flat slope,  
2 there's these depressions. So we're not that concerned about  
3 erosion.

4 Q. Well, I'm talking about the riparian zone at this time.

5 A. Okay, excuse me. A riparian zone, we're going to normally  
6 use a vegetative mixture of various grasses, herbaceous plants.  
7 I notice that on the plan for Fola they had, I believe, four  
8 different mixtures for different situations. Those grasses will  
9 help establish -- would help reduce the amount of erosion in the  
10 near vicinity of the stream itself and then we usually choose  
11 non-competitive grasses such that we can do good tree growth as  
12 well. So that's kind of our mixture.

13 Q. Okay. I believe we heard that it takes the tree litter  
14 for this system to work and you're saying you're putting back  
15 grasses. Does that provide -- is that sufficient?

16 A. Yes. Well, in fact, in some work done by Dr. Palmer,  
17 which is very useful --

18 Q. I think I've got that.

19 MR. CASTLE: Your Honor, may I approach?

20 THE COURT: Yes, you may.

21 BY MR. CASTLE:

22 Q. Is in the article you're referring to?

23 A. Yes, it is.

24 MR. CASTLE: Okay. I would like to admit this.

25 THE COURT: Let's mark it. What is it?

Richard Warner - Direct (Castle)

1 COURTROOM DEPUTY CLERK: Fola 9.

2 THE COURT: Fola 9. Thank you.

**DEFENSE EXHIBIT 9 ADMITTED**

4 THE WITNESS: I'd like to put this into perspective.

This work was done on agricultural land, I believe, and basically land that's open without a canopy, which would be very similar to mine lands that are just recently being reconstructed and one of the statements, I'll just maybe paraphrase it a little bit, was talking about how much plant material and how much organic material is coming through and it says, and it is referring to the previous sentence, "these values are similar to those of course particular organic manner in deciduous forested streams in the eastern USA."

And what the article goes on to say is that the grass provides organic material very similar to deciduous leaves, as far as decomposition of those. At least that's kind of the overall summary of the article.

Q. And that's -- do you agree with that?

A. Actually, I was -- I think it's very useful for the industry to know that this concept, that when you put grasses on banks like that, we know it's very good for erosion. We've been doing it for a very long time, but -- and it makes sense. It makes a lot of sense that it also provides a source of organic material and, depending on the size of the stream, it may do some shading as well. This article indicates for smaller streams that

Richard Warner - Direct (Castle)

1       they're shaded. So I'd agree if you have materials such as  
2       grasses or leaves that go into the stream, those are both sources  
3       of organic material.

4       Q.     Okay, thank you. Okay, where we were on the ground was  
5       that you had looked at all the Ike Fork or all the Fola  
6       operations, reviewed the plans and everything, and then what we  
7       asked you to do, we were going to transfer that system to the  
8       Ike Fork watershed that's going to be impacted. I'll ask you  
9       again, I think you answered this yesterday, but what you saw on  
10      the Fola operations, the system worked; is that correct?

11      A.     Yeah. What we saw is that the Forest Reclamation Approach  
12      was initiated. I believe I saw it over a four-year period and  
13      we're seeing the trees properly planted in space. The spoil,  
14      which is just from a visual observation, did not have like the  
15      acid-producing or sulfate-producing-type spoils that were  
16      visible. So I expect that there's very selective spoil placement  
17      and that's normally the case.

18           The depth, as far as like every four to six feet, you see  
19       from the cuts, basically, and the trees were well established.  
20       The trees were growing and just like we'd expect to see in our  
21       own research.

22      Q.     Was the grass vegetation there as well?

23      A.     There was some vegetation on some of those. Again, some  
24       that are very flat. We had some there around two, three percent,  
25       four percent. Those -- there was not a grass cover that I

Richard Warner - Direct (Castle)

1 recall.

2 Q. Right.

3 A. As we went to the steeper slopes, the slopes there might  
4 have been 30, 35, maybe 40 percent, and those showed some initial  
5 grass establishment and there's some that had very good grass  
6 establishment, depending on the time frame.

7 Q. So if that system that you observed, the active and  
8 functioning system, was moved to the Ike Fork watershed and done  
9 the same way and you would expect the same results on Ike Fork?

10 A. I would expect the same results, yes, sir.

11 Q. And if it was taken to the Laurel mitigation site you  
12 would expect similar results?

13 A. Yes. We're finding -- just to put it into perspective, we  
14 have 19 different sites in Kentucky that we're doing this on and  
15 to put it in a different perspective and going back to Kentucky,  
16 because it's my home, but we -- in 2007, 55 of the 90 Appalachian  
17 coal mine permits are using the forest reclamation technique and  
18 I was told by the -- I guess the -- well, I'm trying to think of  
19 his job title. It was a senior person at the DNR, which is  
20 equivalent to DEP, that his understanding from working with ARRI,  
21 Appalachian Regional Reforestation Initiative, that about 75  
22 percent of the permits now in West Virginia are using this  
23 technique as well. To put that in perspective, ten years ago, we  
24 would have had two permits.

25 Q. I'm going to ask you, everything we've talked about, if

Richard Warner - Direct (Castle)

1 you would, just briefly summarize how the whole system works,  
2 you know, from your perspective in the uplands. I'm not going  
3 to ask you to discuss the stream channels themselves, but the  
4 whole system, and briefly describe that to the judge because I  
5 can't put back together what you've said.

6 A. Okay. I'll give that a try.

7 Your Honor, it is a systems approach and it's one that we've  
8 used quite a bit in many, many different locations.

9 Predominantly, there's seven states in the Appalachia that are a  
10 part of this initiative.

11 THE COURT: You're talking about the Forest Reclamation  
12 Approach?

13 THE WITNESS: Yes, Your Honor. It has many, many  
14 benefits. We've looked at contrasted to maybe just compaction  
15 that come from a more standard technique, that if we use rubber  
16 tire vehicles, we're doing our compaction. We can grow grasses  
17 on those and we see fields and fields of grasses, but it's highly  
18 compacted and when it rains, since it's compacted, there's not a  
19 lot of infiltration. So we're going to be getting runoff.

20 We've measured curve numbers, which is kind of a  
21 hydrological response. We've measured curve numbers on areas  
22 like that. We have one student, Paige Taylor, who had 42 storms  
23 over 28 years (sic) -- let's try a different way. We had 42  
24 storms in 28 months and we have our curve numbers from that and  
25 they're high, as one would expect, and what the literature shows

Richard Warner - Direct (Castle)

1 for that and we basically just verified that for our site and  
2 this was shown by that and I think that if you take down forest,  
3 you shouldn't put it back as prairie land and this is an  
4 acceptable reclamation technique, but my bias is if it starts as  
5 a forest, it should also end as a forest and in advantages, there  
6 are many. Certainly, with this loose dump spoil, again, this is  
7 based on our data, sir, that infiltrates very quickly. Our  
8 surface runoff is vastly decreased.

9 And so what surprised us when we first started looking at  
10 our numbers, we do comparisons. We have a Robinson (phonetic)  
11 course, which is our experimental course, and we have hydrology  
12 data for 30 years on that. It's -- to me, it's the best forest  
13 in the east, but it's our research course as well.

14 What we -- so we have data from both of these. What  
15 surprised us, just the loose dump spoil put out the trees being  
16 planted, functional hydraulically very similar to a forested  
17 watershed, and we didn't have evaporated transformation because  
18 when we look at the hydrology of how much water was going to the  
19 stream as far as peak flow, as far as runoff volume and then on  
20 the hydrograph, which is basically, over time, what the flow  
21 looks like, very similar in one of our publications, shows  
22 hydrographs from forested watersheds and one with loose dump  
23 spoil. Loose dump spoil might run water off an extra day or two,  
24 depending on the rainfall event, but so it functions very similar  
25 to a forested watershed, hydrologically speaking.

Richard Warner - Direct (Castle)

1           The other one that we covered just briefly was the  
2 conductivity, which is, you know, the water quality is always a  
3 concern and we're finding that the water moves through and we're  
4 not going through the 600 feet of spoil -- or 200 feet of spoil  
5 any longer with the very -- the time of how long it takes the  
6 water to perk through, quite frankly, and we don't have studies  
7 in valley fills in West Virginia or Kentucky that says how long  
8 that water takes to go through.

9           I have done work in other countries that if we were to draw  
10 that information in Kentucky, we're certainly not talking days.  
11 We're basically talking months of water to go through those  
12 fills. So when we can keep that water from going through those  
13 fills by its loose dump layer, we have one fairly high  
14 evaporation from that and it gives us the right moisture content,  
15 the right air. We can grow trees. We absolutely know we can  
16 grow trees not just in Kentucky, all these seven states it has  
17 been tried.

18           There's a group of about 200 of us that meet, but  
19 predominantly the researchers, about 15 or 20. We visit each  
20 others' sites and brag on each other, but it truly does work.

21           The other thing is that we are growing trees and so all the  
22 aspects of forests that look like the forest before that was a  
23 forest before we're recreating a forest and it's not -- I don't  
24 believe there's a question about can we recreate a forest like  
25 there's a question of can we create a stream. We have been doing

Richard Warner - Direct (Castle)

1 this for a long time.

2 We have, in fact, data from pre-Smackra facilities where we  
3 -- where they didn't do anything, but just took -- just a push,  
4 just shove-type thing, but there's a lot of bad things, I'll say,  
5 with that, but one of the good aspects of that was that we stood  
6 on loose material. So we didn't have truck traffic. It wasn't  
7 compacted.

8 I remember when Don Graves took me through the first one  
9 because I didn't believe this was going to work, by the way. I  
10 said it doesn't make sense to me. I'm an engineer.

11 And so I walked through this area and I was walking and  
12 asked them how much further we have to walk and he says, "Rich,  
13 we've been in it for the last half a mile." We had trees 40, 55  
14 feet tall. So we know technology works from previous stuff and,  
15 again, Don Graves is a mentor of mine, if you would, in forestry.  
16 He died recently, but he and a number of his counterparts with  
17 his age have been doing this work for quite a long time.

18 One of the other advantages, the Department of Energy  
19 provided -- said, hey, you know, if you're growing these trees,  
20 can we not get credit for carbon sequestration and so we had a  
21 million-dollar grant from them. We did a complete carbon  
22 analysis, leaves, twigs, the roots, the whole bit.

23 So we have another publication -- I shouldn't say  
24 publication. Well, not --

25 Q. I would like to stop you on the carbon. It's not part of

Richard Warner - Direct (Castle)

1 this case.

2 A. Okay.

3 Q. And just talk about this system.

4 A. So, anyway, the trees do give us carbon and the leaves  
5 fall off and so what we're doing is recreating what's going on  
6 from natural forests and so we know our water is working very  
7 nicely, the hydrology, the water quality appears to be working  
8 very well as well and the data that we have so far, again, with  
9 those selected spoils, we have the leaf litter that's coming down  
10 and they're building up and, again, that are flowing into the  
11 stream as well.

12 So provided what we heard yesterday, or maybe the first day,  
13 what are the things that streams need? Water. They need some  
14 sediment. We get sediment as well, but low quantities, similar  
15 to a forested watershed. We're getting energy sources, if you  
16 would, by the E-carbon and some nitrogen predominantly from the  
17 grasses.

18 So, again, we kind of recreated that whole situation and as  
19 those trees grow, we'll be replacing rapidly as well and it will  
20 be an economic resource as well for the people of the area  
21 because it's forested again. So I look at it as a win/win  
22 situation.

23 THE COURT: Did you help design the CMP and  
24 supplemental CMP information for Fola in this permit?

25 THE WITNESS: Design, sir? No. I've only read it.

Richard Warner - Direct (Castle)

1                   THE COURT: Oh, so you weren't consulting them?

2                   THE WITNESS: No, sir.

3                   THE COURT: All right. So you've been retained just to  
4 provide expert testimony here?

5                   THE WITNESS: Just in the last two weeks.

6                   THE COURT: Does the Fola CMP and supplemental CMP and  
7 environmental -- what's the other documents? Do they all contain  
8 or rely upon your Forested Reclamation Approach and the loose  
9 stump spoil?

10                  THE WITNESS: They are currently using Forest  
11 Reclamation Approach with all the activities which I just talked  
12 about, yes, sir.

13                  THE COURT: When you say "currently using," is that  
14 what's planned under this permit?

15                  THE WITNESS: I'm sorry.

16                  THE COURT: Or do you know?

17                  THE WITNESS: The sites that I visited, which are under  
18 construction now, one active mine and one for the mitigation  
19 site, those are using that technique and it's also planned to be  
20 used on Ike 4 and Ike 2.

21                  THE COURT: Okay.

22                  MR. CASTLE: Okay. Thank you, sir.

23                  BY MR. CASTLE:

24                  Q. So, Dr. Warner, in summary, as Your Honor just asked,  
25 when I asked you to review the decision document and the EID and

Richard Warner - Direct (Castle)

1 the mitigation plans from the uplands perspective, all of that  
2 information was provided in that information and in those  
3 documents, correct?

4 A. That's correct.

5 Q. And I asked you to just from your expertise and  
6 experience, when you looked out and when you see all your sites,  
7 especially the Fola sites, did you see a functioning ecosystems  
8 on these sites?

9 MR. LOVETT: Objection Your Honor. I heard him testify  
10 about the sites on his research station. Mr. Castle just made a  
11 leap to the Fola sites. I don't know what he's seen at the Fola  
12 sites. He appeared to walk there. We have three different sites  
13 at issue here. I don't know which Fola sites --

14 THE COURT: Well, lay a foundation then for what he  
15 knows about them, which sites he's seen, and so forth.

16 BY MR. CASTLE:

17 Q. As we discussed yesterday, and again today, I asked you,  
18 you went out on the -- the Fola 4 site that I specifically  
19 discussed; you went out and looked at the four station areas;  
20 you looked at the slopes and the system that was being recreated  
21 in the -- where the water -- where the wetlands are we talked  
22 about yesterday; you looked at the slopes; you looked at the  
23 past reclamation; you looked at the forestry; you looked at  
24 trees from one to four years; you've looked at the ecosystem as  
25 a whole in that watershed, correct?

Richard Warner - Direct (Castle)

1 A. That's correct.

2 MR. LOVETT: There are three Fola sites at issue here.

3 MR. CASTLE: I'm only asking about Fola 4.

4 MR. LOVETT: If you're only asking about 4, I  
5 apologize.

6 THE COURT: All right.

7 THE LOVETT: Excuse me then.

8 MR. CASTLE: That's the one modeled to be transferred  
9 over to Ike Fork.

10 THE WITNESS: The answer is that's correct, sir.

11 MR. CASTLE: So can I ask a question?

12 THE COURT: Yes.

13 BY MR. CASTLE:

14 Q. So did you, on Fola 4, see a functioning ecosystem?

15 A. Yes. I saw the Forest Reclamation Approach being  
16 initiated and it looks like successfully being initiated over  
17 that four-year period roughly.

18 Q. Okay, thank you. And I asked you, you know, one of the  
19 things I asked you, when we do a retain, is to review all the  
20 documents, the EID, decision documents, mitigation plan,  
21 planning plans, and et cetera, and I asked you to put yourself  
22 in a seat of a Corps reviewer looking at that information and I  
23 have to ask you, did the Corps have enough information to make  
24 the same decision you made?

25 A. With regard to the materials, I selectively read the

Richard Warner - Cross (Lovett)

1 materials that would be more applicable to the areas to which I  
2 would testify on and so I didn't read the entire document, but  
3 for those applicable areas there is certainly a forest -- the  
4 reforestation method, also, as part of the Smackra permit.

5 They had four different kinds of vegetation that were  
6 planted, depending on their situation; the riparian zone, upland,  
7 annuals, perennials, things like that. So the material indicates  
8 to me, without having seen the site, that they are using this  
9 Forest Reclamation Approach.

10 MR. CASTLE: Thank you. That's all I have, Your Honor.

11 THE COURT: All right. Does the Corps have any  
12 questions?

13 MS. STOREY: No questions, Your Honor.

14 THE COURT: All right. Mr. Lovett.

15 **CROSS EXAMINATION**

16 **BY MR. LOVETT:**

17 Q. Good morning, Dr. Warner.

18 A. Good morning, Mr. Lovett.

19 Q. Let me get some things straight. Did you visit the  
20 Laurel Fork site where the mitigation plan was proposed?

21 A. Yes, I did.

22 Q. And did you review the Smackra permit and the planting  
23 plan and the reclamation plan for that Laurel Fork permit?

24 A. I did not review the Smackra permit.

25 Q. Do you know what the soil mix is at the Laurel Fork site?

Richard Warner - Cross (Lovett)

1 A. I looked at the description. From those ratios or from  
2 reading? Both?

3 Q. Either or both.

4 A. Okay. Observation, the spoil is predominantly a  
5 sandstone, a weathered sandstone, sometimes sandstone and shale  
6 mixture. From a description of the spoil, which was, I think, in  
7 EID, that described it the same way, but certainly with more  
8 detail.

9 Q. The Laurel Fork site? Now I'm not talking about Fola  
10 4-A.

11 A. Okay. I -- I know I'm --

12 Q. Let me --

13 A. Okay.

14 Q. Fola 4-A is the mine plan that was designed by Jim  
15 Berger, right, or the reclamation designed by Jim Berger.

16 A. Okay.

17 Q. Now do you know why Dr. Berger designed that plan?

18 A. No.

19 Q. Okay. So that's Fola 4-A, which does have a mixture of  
20 brown weathered sandstone and some gray weathered shales. I'm  
21 not asking about Fola 4-A.

22 A. Okay.

23 Q. And I'm not asking about Ike Fork, which is the proposed  
24 mine here. I'm asking you about the Laurel Fork site which was  
25 mined several years ago.

Richard Warner - Cross (Lovett)

1 A. Okay. The one with the high walls?

2 Q. The one where they reclaimed the high walls.

3 A. Okay, yes.

4 Q. Now have you reviewed the mine plan for that site?

5 A. No, I have not.

6 Q. Do you know what the soil mix, the topsoil, the top, say,  
7 eight or ten feet of material is on that site?

8 A. Again, from observations.

9 Q. And you don't think there's any brown weathered sandstone  
10 in that, do you?

11 A. I think I see a mix of it. There's some gray sandstone.  
12 You know, if we look at the geology of this area, there's a  
13 weathered brown sandstone cap.

14 Q. Yes.

15 A. Then there's the gray sandstone that's deeper, some layers  
16 of shale and, obviously, the coal. That would be the sequence  
17 and kinds of materials that would be used.

18 One of the research projects that we did, and I know there  
19 was some discussions between Dr. Berger and Dr. Graves, and one  
20 of the things that we did was look at brown, as well as gray, as  
21 well as mix for our tree growth.

22 Q. I understand there's a lot of research on brown, gray and  
23 the mixture, and we're going to talk about that here today, but  
24 first I want to talk about the Laurel Fork site itself. Now  
25 wasn't it and hasn't it typically been the practice to take that

Richard Warner - Cross (Lovett)

1 brown weathered stand stone cap, if you will, and the topsoil  
2 that overlies it and dump it in the bottom of the fill and  
3 leaving only the gray sandstone on top?

4 A. I don't believe that's being done anymore, sir.

5 Q. You don't?

6 A. Not at the sites I've been working on.

7 Q. Not the sites where forestry is proposed, perhaps,  
8 anymore, but I'm asking you wasn't that the way that it was done  
9 in this state and in Kentucky and other states until very  
10 recently, even for forestry reclamation plans?

11 A. I would say at some sites they did that and some sites  
12 they did not.

13 Q. Can you name me a single site that say brown weathered  
14 sandstone before the settlement of the consent decree?

15 A. What was the time frame of that?

16 Q. Before 2000.

17 A. Star Fire Mine.

18 Q. Okay. In West Virginia, I'm sorry.

19 A. Oh, no.

20 Q. Okay. You don't have any idea what happened at Laurel  
21 Fork, do you, whether they saved the brown weathered sandstone  
22 or whether the mining company did what was more typical at the  
23 time, which was to dump the brown weathered sandstone into the  
24 bottom of the fill?

25 A. I wasn't there.

Richard Warner - Cross (Lovett)

1 Q. Right. So do you have any indication that topsoil was  
2 saved at Laurel Fork?

3 MR. CASTLE: I object. You know, what was on direct  
4 was that same reforestation practice would be carried to Laurel  
5 Fork.

6 THE COURT: Well, that's what he's asking about Laurel  
7 Fork.

8 MR. CASTLE: That's what he's asking about, but he's  
9 starting to ask about material and -- and out of its place and --

10 MR. LOVETT: I'm trying to determine whether the Laurel  
11 Fork site --

12 MR. CASTLE: The witness never spoke of soil, topsoil  
13 being used, in the mixture that he was discussing.

14 THE COURT: Well, you had him testify extensively about  
15 the makeup of fills and the --

16 MR. CASTLE: And then the --

17 THE COURT: The riparian zones and all that. I'm going  
18 to allow it.

19 MR. CASTLE: Just one other thing I would like to  
20 mention. He did not mention the soil as being a part of the mix  
21 for these reforestation projects.

22 BY MR. LOVETT:

23 Q. Do you think it beneficial to save topsoil?

24 A. Well, the topsoil in Appalachian areas is just two to  
25 three inches thick.

Richard Warner - Cross (Lovett)

1 Q. Is that true? Do you really believe that the topsoil in  
2 Appalachian forests is two to three inches thick? Is that what  
3 Dr. Berger's research shows?

4 A. That's what my research shows.

5 Q. Have you read Dr. Berger's research on this?

6 A. No, I have not. Oh, on the thickness of the topsoil?

7 Q. Yes.

8 A. No, I have not.

9 Q. Do you think that the topsoil is uniform on the site or  
10 does it vary depending on slope and materials below the topsoil?

11 A. It absolutely varies as a function of slope.

12 Q. So isn't three inches the thinnest part of the topsoil?

13 A. Three inches was the thinner part that's on the steeper  
14 slopes, which is a majority -- which is a majority of the  
15 topography.

16 Q. Well, Dr. Berger described in his research, I think,  
17 topsoil sort of -- he doesn't call it a mine, but that's, in  
18 effect, what they are. There are places in these mountains  
19 where there is a lot of topsoil that can be saved and  
20 re-applied; isn't that right?

21 A. Certainly, near the streams.

22 Q. And don't you think it would be beneficial to save that  
23 topsoil for the flora, the fauna, the physical characteristics,  
24 the chemical characteristics and all the things Dr. Berger talks  
25 about, to save that topsoil and re-apply it in the mix, as I

Richard Warner - Cross (Lovett)

1 believe Fola 4 -- Fola may have done on Fola 4-A? Wouldn't that  
2 be beneficial?

3 A. If we -- we need to look at the quantities of materials as  
4 well. If we look at the vast majority of the slope being fairly  
5 thin soils, it's not like that where it's very, very thick.  
6 They're very thin soils. And if we look at the thicker soils at  
7 the bottom at the concave portion of the slope approaching the  
8 stream and if we look at a balance of earth work such that we  
9 have a very small section of deeper soils and a very large  
10 section of thin soils, the thin soils are difficult to get out.

11 To answer your question of if it would be beneficial for the  
12 deeper soils by the riparian zone to be used, I would say yes, if  
13 that area is being mined.

14 Q. Do you know if there's any topsoil saved at Laurel Fork  
15 and reapplied to that surface?

16 A. No, I do not.

17 Q. Did you visit Laurel Fork, the mitigation site?

18 A. Yes, I did.

19 Q. Okay. Now you and others have done a lot of research on  
20 soil mixture, right, what the best soil -- or not soil -- that's  
21 not -- material is for placing on the tops of -- on the -- say,  
22 the icing on the mine. You guys have done a lot of research on  
23 that?

24 A. A fair amount.

25 Q. Okay, and those are called topsoil substitutes?

Richard Warner - Cross (Lovett)

1 A. Yes.

2 Q. In Smackra, right?

3 A. They are.

4 Q. So these topsoil substitutes are what we're talking about  
5 because there's no topsoil saved on any mining -- well, on the  
6 vast majority of the surface mining operations; is that true?

7 A. I presume that's true for Appalachia.

8 Q. And I think you testified that there are several factors  
9 that are important in growing trees; lack of compaction being  
10 one?

11 A. One of the primary ones.

12 Q. At least in the first -- you said -- did you say six  
13 feet?

14 A. The guidelines say a minimum of four feet.

15 Q. But doesn't the research show that if you have more  
16 material than just the four feet, if you go even ten feet, that  
17 you get better productivity in the trees?

18 A. Not that I'm aware of.

19 Q. Okay. So you have the topsoil substitute and, as you  
20 said earlier, I think, the natural material on the top is brown  
21 weathered sandstone; is that right?

22 A. On the geology of the mine.

23 Q. On the geology of the mine. Before mining occurs, under  
24 this soil is a layer of brown weathered sandstone, typically?

25 A. Typically.

Richard Warner - Cross (Lovett)

1 Q. And that's a slightly acidic material?

2 A. Very slightly.

3 Q. It's the kind of material that trees in this region grow  
4 in naturally? They like -- our native forests like slightly  
5 acidic soil, right?

6 A. That's correct.

7 Q. So one of the things that Dr. Berger and others --

8 MR. CASTLE: Objection, Your Honor. I don't ever  
9 remember Dr. Berger coming in on direct. I don't know why he  
10 keeps referring to Dr. Berger. This is the testimony of Dr.  
11 Warner, who is a --

12 THE COURT: Well, let him ask the question.

13 What's your question?

14 BY MR. LOVETT:

15 Q. One of the things that Dr. Berger and others have shown  
16 is that, as I understand it, that not compacting soils is good  
17 for growing trees?

18 THE COURT: I'll overrule the objection. Obviously,  
19 he's asking about compaction, which he testified to extensively.

20 MR. CASTLE: Yes, sir.

21 THE WITNESS: That's correct.

22 BY MR. LOVETT:

23 Q. Do you know if the material at Laurel Fork was compacted?

24 A. My understanding is that the material at Laurel Fork was  
25 not compacted intentionally because they were using dozers.

Richard Warner - Cross (Lovett)

1 Q. Okay.

2 A. And pushing. So it's not rubber tire traffic, which  
3 predominantly is what causes a large amount of compaction.

4 Q. Now we're talking about Laurel Fork, the mitigation site,  
5 not Fola 4-A, and not Ike Fork, not the proposal for Ike Fork,  
6 but Laurel Fork. Do you know whether the material at Laurel  
7 Fork was compacted?

8 A. Again, Laurel Fork is where the high wall elimination was  
9 done?

10 Q. Yes, that's correct.

11 A. Yes. My understanding is that it was done by dozer  
12 operation.

13 Q. Okay. Do you know how deep the zone of non-compaction  
14 is?

15 A. Just from what I've been told.

16 Q. Okay. Now that material is likely to be just gray  
17 sandstone, isn't it?

18 A. It is likely to be a mixture.

19 Q. Why is it likely to be a mixture? If the brown weathered  
20 sandstone is on the top and mining companies typically take the  
21 material and dump it first and don't, say, mix together the  
22 brown with the gray, why do you think it's likely to be a  
23 mixture on that particular site?

24 A. Because when you're mining, you usually don't take the  
25 entire area. You strip off all the sandstone and place it down

Richard Warner - Cross (Lovett)

1 deeply. Normally, it's a sequential activity. So it's going to  
2 end up with a mixture of spoils.

3 Q. Okay. Do you have any idea what the mixture is there?

4 A. I would expect it's very typical for Appalachia, which  
5 would be brown, gray and sand.

6 Q. Do you know what percentage of brown the mining company  
7 managed to save and mix with the gray?

8 A. Again, I'm not saying they're saving it. I'm saying that  
9 during the normal operation of mining, what we know sequentially  
10 is we're going through the contour job. You're always going to  
11 be having some sandstone, some brown sandstone, as part of that  
12 and so we have a mixture of the brown sandstone, the shale and  
13 the gray sandstone.

14 Q. It's mostly gray sandstone if you're going through  
15 subsequently and dumping the brown down in the bottom first,  
16 isn't it? I mean you're the mining expert. You know how that  
17 works.

18 MR. CASTLE: Your Honor, objection. I believe he's  
19 asked about four times and I believe he's answered about four  
20 times.

21 THE COURT: Well, overruled.

22 MR. LOVETT: I don't think he's answered.

23 THE WITNESS: Repeat your question again, please.

24 BY MR. LOVETT:

25 Q. The question is, typically, if a mining operator wasn't

Richard Warner - Cross (Lovett)

1 making a conscious effort to save the brown weathered sandstone,  
2 most of it would be wasted in the bottom, wouldn't it?

3 A. Again, I wouldn't say most would be wasted. I would say  
4 it's mixed because of the mine operation.

5 Q. What percentage of brown weathered sandstone would you  
6 expect to find on a contour mine the size of the Laurel Fork  
7 contour mine on the -- in the top four feet, what percent of  
8 brown weathered sandstone would you expect to find there if  
9 nobody made an effort to save it and place it there?

10 A. Do you want a guess?

11 Q. I don't want a guess. I want to know if you have a  
12 professional view of it. If it's based on something, go ahead,  
13 but I don't want a guess. If you don't know, you don't know.

14 A. Okay. I don't know.

15 Q. Okay. Now is it true that gray sandstone alone doesn't  
16 achieve very high productivity levels for tree regeneration?

17 A. It appears from our research it doesn't do as well as the  
18 brown.

19 Q. Well, it's not even close, is it?

20 A. Percentage-wise?

21 Q. Okay. Well, let's talk about it.

22 A. Okay.

23 Q. Three different scenarios, brown, gray and mixed. When  
24 we talk about mixed in your research, what percentage brown is  
25 in the mix?

Richard Warner - Cross (Lovett)

1                   MR. CASTLE: Objection, Your Honor. Mr. Warner  
2 reviewed the planning plans. He reviewed the performance  
3 standards that are required by the Corps.

4                   THE COURT: Overruled. You asked him extensively about  
5 compaction. I think he's entitled to ask about the components of  
6 the spoil as it's compacted and how that affects tree growth. I  
7 mean you asked him extensive questions about compaction and tree  
8 growth, didn't you?

9                   MR. CASTLE: Yes, sir.

10                  THE COURT: I think that's where this is.

11                  MR. LOVETT: I believe, Your Honor, he also asked about  
12 soil mixes.

13                  MR. CASTLE: Just a correction. I asked about the  
14 media that was for the planning as well.

15                  MR. LOVETT: Media soil mixes.

16                  MR. CASTLE: They're not interchanged.

17                  THE WITNESS: I would have to review the paper.

18                  MR. LOVETT: May I approach?

19                  THE COURT: You may.

20                  THE WITNESS: Thank you.

21                  MR. LOVETT: May I have that marked as 17, please.

22                  BY MR. LOVETT:

23                  Q. You've seen that paper before, haven't you?

24                  A. Yes. I wrote it.

25                  Q. Well, you were an author on it; is that fair to say?

Richard Warner - Cross (Lovett)

1 You're the third author on the paper. Now let's look at some of  
2 these -- you know the paper much better than I do, so if you  
3 think that there's something you would like to testify about  
4 that I don't call your attention to, feel free to, but what  
5 catches one's eye is page 34. It's got a chart on it. Now  
6 where is this -- where is this research?

7 A. It's called Bent Mountain.

8 Q. And is that in Kentucky?

9 A. Yes, it is.

10 Q. And Bent Mountain -- you have two years of data?

11 A. That's correct, yes, at the time this was published.

12 Q. You have more data now?

13 A. We do.

14 Q. And at the time this was published, on browned sandstone,  
15 you're getting pretty -- now one thing that the paper says, I  
16 mean you don't want to confuse productivity with survival, do  
17 we?

18 A. That's correct.

19 Q. And why not?

20 A. Well, there are two different aspects. Productivity has  
21 to do with basically the mass of the wood, if you would.

22 Q. Right, because a tree can survive for awhile, but not  
23 grow appreciably?

24 A. Absolutely.

25 Q. So I think what you point out here and what others are

Richard Warner - Cross (Lovett)

1 pointing out now is that we want to look at productivity, not  
2 tree survival, right?

3 A. Obviously, a tree has to survive to have any productivity.

4 Q. But the measure of success isn't survival anymore, it's  
5 productivity; is that correct?

6 A. I'd say the tree height has some aspects to it, as far as  
7 shading and things like that, but so I think all of those  
8 parameters are important.

9 Q. I mean I thought we had a lot of sites in West Virginia  
10 and Kentucky where trees -- little spindly trees survive for 10  
11 or 15 years and then slowly die or, you know, I thought that was  
12 a traditional --

13 MR. CASTLE: Objection, Your Honor. Where is that  
14 coming from? I mean we're not talking about spindly trees  
15 anymore. We're talking about a planting plan here.

16 THE COURT: Overruled.

17 THE WITNESS: Your question again, please?

18 BY MR. LOVETT:

19 Q. The question is, until you and Dr. Berger and Dr. Graves  
20 and others started doing this research, we had -- in West  
21 Virginia and Kentucky on these sites were trees that were  
22 planted and survived for sometimes a long time, but then they  
23 eventually died because they just didn't thrive; is that not  
24 right?

25 A. Prior to the loose spoil?

Richard Warner - Cross (Lovett)

1 Q. Yes.

2 A. Well, compacted soil?

3 Q. Uh-huh.

4 A. Oh, absolutely.

5 Q. Right, and I think Dr. Berger calls that -- at some  
6 point, they become free to grow. Is that a forestry term, "free  
7 to grow"?

8 A. I'm not aware of it.

9 Q. You're not aware of that term? Okay, but trees don't --  
10 just because a tree survives for awhile doesn't mean it's ever  
11 going to achieve any stature as a tree, right?

12 A. I think that that is absolutely correct.

13 Q. So now you look at productivity as a main measure of tree  
14 success, right?

15 A. One of the measures.

16 Q. Okay. Now what you show here on page 34 is that the  
17 brown did very well in the second year, I guess. Is that a good  
18 result from --

19 A. I think it is, yes.

20 Q. That's showing it's fairly productive. The gray, what do  
21 you think of the gray productivity there?

22 A. It's a slight increase.

23 Q. Slight increase? What would you see in nature? If this  
24 were a natural ecosystem, what kind of increase would you see  
25 there?

Richard Warner - Cross (Lovett)

1       A.    Actually, we have done some work looking at the natural  
2 system, as well as Dr. Berger --

3       Q.    Right.

4       A.    -- has looked at the natural systems as well and,  
5 according to Dr. Berger and, also, Dr. Graves, they're saying  
6 that in the loose dump spoil that we're getting better tree  
7 growth than we are in the natural forest.

8       Q.    On brown weathered sandstone?

9       A.    On brown weathered sandstone for Dr. Berger's work.

10      Q.    I didn't ask you about brown weathered sandstone, though.  
11      I asked you about gray.

12      A.    Okay.

13      Q.    Is that gray there as -- is that growing as quickly as a  
14 natural tree would in the forest?

15      A.    No. I don't believe so.

16      Q.    Okay.

17      A.    For this date and time frame of one year.

18      Q.    Right. Now you say you have some more data and I pulled  
19 some of it, a little bit of it, off the internet last night. I  
20 hope I have enough of these.

21           Is this the third year?

22           MR. LOVETT: And this will be exhibit 18.

23           BY MR. LOVETT:

24      Q.    Is this the third year of your data?

25      A.    That's correct.

Richard Warner - Cross (Lovett)

1 Q. What happened to the gray there?

2 A. What we are finding is this is the average of all the tree  
3 types that's put in perspective.

4 Q. Sure.

5 A. And so, on average, it's about the same.

6 Q. Well, it actually decreased. It got worse, didn't it?

7 A. About a centimeter.

8 Q. Well, that's not a good sign, is it, for tree health? It  
9 actually got worse in the third year. The trees were smaller in  
10 the third year than they were in the second.

11 A. Well, one of the things we're finding in nature is that  
12 rainfall is not always the same and if we look at wet years and  
13 dry years, we see tree growth and when we look at any tree in the  
14 natural system, tree rings, actually, sometimes growth is better,  
15 sometimes growth is not. So to look at a year-to-year basis is  
16 not an effective way to actually measure. We have other sites,  
17 such as the Star Fire site, which we have data as well and which  
18 we could look at if we're going to be looking at data.

19 Q. Okay.

20 A. We can look at that data as well. You're going to see a  
21 difference in growth.

22 Q. You may testify about that, but first, look at your own  
23 data here. Look at your own data. What happened on the brown  
24 and the mixed?

25 A. The other is also my own data, by the way.

Richard Warner - Cross (Lovett)

1 Q. What's that?

2 A. The other that I referred to is also my own data.

3 Q. Okay.

4 A. Okay.

5 Q. Look at this. But look at this data here. It is not  
6 explained just by a droughty year, is it, because the brown and  
7 the gray actually do a lot better?

8 A. Yes. The brown is doing excellent on this one as far as  
9 the average of all the tree species.

10 Q. Now let's even talk about the best case scenario if you  
11 used all brown weathered sandstone here, which I believe is what  
12 Dr. Berger recommends, isn't it?

13 A. Dr. Berger's recommendation is brown, that's correct.

14 Q. Even if you use that with trees only two feet high in the  
15 third year, right?

16 A. That's correct.

17 Q. Have you looked at the Ike Fork reclamation plan? The  
18 Ike Fork is the one that hasn't been mined yet. It's what this  
19 permit is for, for mining.

20 A. Yes, I did.

21 Q. And you looked at the Fola 4-A reclamation plan, Dr.  
22 Berger's reclamation plan; is that right?

23 MR. CASTLE: Objection. We never said he looked at  
24 the 4-A. We said he looked at the 4-A mine itself.

25 MR. LOVETT: Oh, I misunderstood.

Richard Warner - Cross (Lovett)

1 BY MR. LOVETT:

2 Q. Did you look at the 4-A reclamation plan?

3 A. I looked at a number of different reclamation plans. I  
4 don't recall specifically that one.

5 Q. Okay. Well, can you testify here that Fola 4-A used --  
6 well, strike that.

7 You also testified about conductivity, I think, and you are  
8 doing some research on conductivity now?

9 A. Yes.

10 Q. And, as I understood your testimony, conductivity is  
11 associated with high sulfate material?

12 A. Yes, sir.

13 Q. And the reason you hypothesized that we have high  
14 conductivity between -- in these -- coming from the fills is  
15 because high sulfate material is placed in the fill at the time  
16 it was constructed, not kept high and dry with a material  
17 handling plan?

18 A. That's predominantly the mining method that was used.

19 Q. Do you believe that valley fills in West Virginia are  
20 compacted or not compacted during the mining process?

21 A. I believe they use two different techniques, but  
22 predominantly they use -- I expect they use a dump technique.

23 Q. And, therefore, do you think that the surface of the fill  
24 is usually compacted under the West Virginia regulations and  
25 program?

Richard Warner - Cross (Lovett)

1       A.    The surface, yes. I suspect the surface is if they're  
2 using a truck operation, which I believe most of them are doing,  
3 and they'll get compaction of the surface.

4       Q.    And how long has it been that way, if you know?

5       A.    I'm sorry, that mining method?

6       Q.    How long has the State of West Virginia, maybe OSM,  
7 required compaction of the surface of a valley fill?

8       A.    Well, first off, it wasn't required by OSM and that was  
9 made very clearly when we do loose dump spoil, but that was the  
10 technique predominantly used. I expect it was used predominantly  
11 throughout Smackra, which was 1977 and basically starting around  
12 1980.

13      Q.    How long has the State of West Virginia required a  
14 material handling plan for high sulfate materials?

15      A.    I don't know West Virginia regulations.

16      Q.    Do you think it's been at least ten years?

17      A.    To put the -- I don't know.

18      Q.    Well, are you familiar with Smackra and -- are you  
19 familiar with Smackra?

20      A.    Yes.

21      Q.    Does Smackra require toxic material -- material handling  
22 plans for toxic materials?

23      A.    They do.

24      Q.    And it's to prevent acid mine drainage usually, right?

25      A.    Usually.

Richard Warner - Cross (Lovett)

1 Q. And those are the sulfate materials you're talking about?

2 A. Predominantly.

3 Q. That's always been a requirement.

4 A. Material handling, that's correct, but the way they'd  
5 handle it was to bury the fills.

6 Q. Well, I thought that the regulations required usually  
7 encapsulation and placing it in a dry area?

8 A. And the assumption at that time during mining was if you  
9 put it deep in a fill and compacted the surface you accomplished  
10 that.

11 Q. When was the Laurel Fork -- do you know if Fola built the  
12 Laurel Fork valley fills?

13 A. My understanding is that they took over a mining operation  
14 from perhaps Pittston and I believe Pittston constructed it, but  
15 I don't know for sure.

16 Q. Do you know what material was placed in those valley  
17 fills?

18 A. No.

19 Q. Is it difficult to determine where all the materials with  
20 sulfate are on the mine site before you mine?

21 MR. CASTLE: I object, Your Honor. We never talked --  
22 didn't even raise with Mr. Warner the construction of the valley  
23 fill in Laurel Fork. The reclamation plan is on top of the  
24 valley fill -- or the mitigation plan, I'm sorry, is on top of  
25 the valley fill. We discussed nothing within the valley fill.

Richard Warner - Cross (Lovett)

1 It was even -- it was even brought out yesterday that there was  
2 no credit giving -- there was a 0 basis starting there. The  
3 reclamation plan -- or the mitigation plan for reclamation is  
4 above the valley fill.

5 THE COURT: Well, I think you asked him extensive  
6 questions about what I'll characterize as his recommended  
7 practices and the way a valley fill is constructed, how it's  
8 compacted, how that affects the hydrology and the quality of the  
9 water flow. So I think counsel is entitled to ask him about  
10 applying that.

11 MR. CASTLE: I never asked him at all about a valley  
12 fill. I asked him about the backfill of the material where he  
13 created the hard pan on the reclaimed side of Ike Fork. I never  
14 brought a valley fill up at all.

15 MR. LOVETT: He testified that the reason there was  
16 conductivity in the streams, because valley fills were high in  
17 sulfates, and that's been corrected and it won't be --

18 MR. CASTLE: And, Your Honor, he discussed the valley  
19 fills, what had happened in the valley fills. We were talking  
20 about Ike Fork and how it was not going to be done.

21 THE COURT: Well, counsel is entitled to cross examine  
22 him about those principles as applied to another area of the mine  
23 site. Overruled.

24 MR. CASTLE: But the witness has no idea on --

25 THE COURT: Well, he can say he has no idea. He can

Richard Warner - Cross (Lovett)

1 answer the question then, if he doesn't know.

2 MR. CASTLE: Thank you, Your Honor.

3 THE WITNESS: Would you repeat the question, please?

4 MR. LOVETT: I was afraid you were going to ask me to  
5 do that. That's fair enough.

6 BY MR. LOVETT:

7 Q. I think I already asked you and you said you didn't know  
8 what material was in the Laurel Fork valley fills. Oh, I know  
9 what I asked you. Do you know how difficult it is before mining  
10 to isolate the toxic materials that we're talking about here?

11 A. I do not.

12 Q. You've done it at your experimental station, right?

13 A. Yes, but this is -- if I understood your question, your  
14 previous question, prior to mining, is it difficult?

15 Q. Yes.

16 A. We actually had the spoils available and so it's much  
17 easier.

18 Q. Right. I mean we've had -- well, mining companies have a  
19 lot of trouble, for instance, in this state isolating where the  
20 high selenium materials are in the mine. Have you experienced  
21 that?

22 MR. CASTLE: Objection, Your Honor. Selenium has  
23 definitely not been brought up.

24 MR. LOVETT: It just goes to show, Your Honor, and all  
25 I'm trying to show, Your Honor, is that isolating materials on a

Richard Warner - Cross (Lovett)

1 mine site are much more difficult than isolating particular  
2 materials in research.

3 THE COURT: Well, ask that question then. Overruled.

4 BY MR. LOVETT:

5 Q. Is that true? Is it more difficult to isolate toxic  
6 materials on a real mine site than it is in a research forest?

7 A. No, it is not.

8 Q. It's not?

9 A. They're easily identifiable by visual.

10 Q. Okay. So during a mining process a machine operator  
11 would be able to identify it and then haul it off somewhere  
12 else?

13 A. I certainly believe that -- I'm not going to say a machine  
14 operator unless they're more experienced, but certainly the crew,  
15 the crew chief, would be capable of doing that.

16 Q. And what if there's a lot of the material? How do you  
17 know before you start if there's a lot of material there?

18 A. Your question, please?

19 Q. How do you know, how does a mining operator know before  
20 it starts its operation, that it has enough place high and dry  
21 to place all the sulfate material that you're concerned about?

22 A. Well, through the mine plan.

23 Q. I thought you said it didn't know before it started where  
24 the sulfate material was?

25 A. My I finish my answer?

Richard Warner - Cross (Lovett)

1 Q. Yes.

2 A. Okay. Through the mine plan you look at different  
3 locations that are available for spoil placement. They also do a  
4 value calculation of those and so they know what sites and also  
5 what -- well, what areas and the volumes associated with that.

6 I would expect that since West Virginia has been mined for  
7 quite a long time that the operators in this area, especially  
8 those who have been operating at mines for 10 to 15 years, have a  
9 very good feel, a very good understanding, of what kinds of  
10 distribution of various materials that they have, again, through  
11 experience.

12 Q. Is it your testimony that West Virginia mine operators  
13 are no longer creating conductivity problems downstream of the  
14 valley fills?

15 MR. CASTLE: Objection, Your Honor. I don't believe  
16 that was said.

17 THE COURT: Overruled.

18 THE WITNESS: I remember this one.

19 BY MR. LOVETT:

20 Q. You do remember it?

21 A. Yes, sir.

22 Q. Okay.

23 A. Okay, but if you would give it to me again, please.

24 Q. Pardon?

25 A. One more time, please.

Richard Warner - Cross (Lovett)

1 Q. Okay. Is it your testimony that West Virginia mining  
2 operators are no longer creating conductivity problems below  
3 their valley fills?

4 A. That is not my testimony.

5 Q. Okay. Now you have, in your research project you  
6 testified, reached -- I think you said you were reaching levels  
7 of five and six hundred, whatever the unit is for the  
8 conductivity; is that right?

9 A. What I said was that we had research for Bent Mountain and  
10 those were the ones that --

11 Q. With that amount?

12 A. Yes.

13 Q. And that's a very controlled setting?

14 A. No. It's an actual surface mine.

15 Q. Okay. So in an actual surface mine the best you've  
16 achieved are five to six hundred?

17 A. After two years and two spoil types.

18 Q. Are you also getting readings higher than that?

19 A. We are in one spoil type.

20 Q. What are those readings?

21 A. There were two plots on that. One started around 600 and  
22 stayed at 600 and the other started out -- over a two-year  
23 period. The other started out about 1,000 and roughly 1,000  
24 again after two years.

25 Q. Now were you here for the testimony for the past two

Richard Warner - Cross (Lovett)

1 days?

2 A. I have been.

3 Q. And you heard Dr.'s Palmer and Bernhardt testify, and  
4 particularly Dr. Bernhardt, I think, about conductivity levels;  
5 is that fair?

6 A. I did hear that, yes.

7 Q. I'm not going to ask you a specialized question, don't  
8 worry about it, with conductivity, and did you hear testimony  
9 about the Pond article, the article by the EPA scientist?

10 A. I'm familiar with Brett Pond's work.

11 Q. And do you know what Dr. Pond found, what levels he  
12 found, for problems with conductivity?

13 A. Again, I don't purport to be an expert in this area, but  
14 having read his article, I can mimic that. Is that okay?

15 Q. I'm not trying to get you to say if he's right or wrong.  
16 I just wonder if you know where he found that.

17 A. Yes. My -- I received a draft of his article a little bit  
18 before and he also did some work in Kentucky because that's where  
19 he's from and, as I recall, there was a graph showing  
20 specifically from mayflies and, again, this is out of my area,  
21 but basically, for mayflies we saw a decrease in the number of  
22 mayflies as conductivity increased. As I remember the graph --  
23 if you have it there, it would help me out.

24 Q. I have the article.

25 A. Okay. So somewhere around 500 and 800.

Richard Warner - Cross (Lovett)

1                   MR. CASTLE: Objection, Your Honor. The witness  
2 discussed conductivity on his sites. He did not raise that he  
3 had reviewed the Pond article and I did not qualify him for that.

4                   MR. LOVETT: I'll wait until rebuttal, Your Honor.  
5 I'll have one of our witnesses testify about that.

6                   THE COURT: All right. The question is withdrawn.

7                   BY MR. LOVETT:

8                   Q. Now have you reviewed conductivity levels in Lilly Fork?  
9 Do you know where Lilly Fork is?

10                  A. I do know where Lilly Fork is.

11                  Q. Okay. Have you reviewed the conductivity levels in that  
12 stream?

13                  A. I saw some numbers on that, yes.

14                  Q. And what were they?

15                  A. Perhaps 1,200 to 1,400 maybe, plus or minus.

16                  Q. I don't think it was quite that high, but I --

17                  A. Okay.

18                  Q. I think it was somewhere between 800 and 1,000 --

19                  A. Okay.

20                  Q. -- elevated conductivity levels on Lilly Fork, right?

21                  A. 800 to 1,000.

22                  Q. And what about Laurel Fork, did you hear Dr. Bernhardt  
23 testify about the high conductivity on Laurel Fork?

24                  A. I did.

25                  Q. All, I think, over 1,500 or between 1,500 and 3,000; is

Richard Warner - Cross (Lovett)

1 that right?

2 A. I don't recall exactly, but --

3 Q. Clearly, there's a lot of conductivity in the watershed  
4 where this recreation project will drain into, isn't there?

5 A. It appears to be that way.

6 Q. What about Fola 4-A, do you know if conductivity is  
7 coming from Fola? That's probably not the right way to say it.  
8 Do you know if Fola 4-A is generating high conductivity levels?

9 A. I'd have to look at the numbers again.

10 Q. You don't know?

11 A. Not from memory, no, sir.

12 Q. Well, do you have a recollection that they're high?

13 MR. CASTLE: Objection, Your Honor. He did not review  
14 any records on Fola 4-A, as we discussed.

15 MR. LOVETT: If he didn't, he can say that.

16 THE COURT: Then he can say that he didn't.

17 THE WITNESS: I don't know the values. I do not know  
18 the values.

19 BY MR. LOVETT:

20 Q. Okay.

21 MR. LOVETT: One minute, Your Honor.

22 BY MR. LOVETT:

23 Q. And you reviewed this mitigation plan for the Laurel Fork  
24 mitigation plan as well?

25 A. The CMP?

Richard Warner - Cross (Lovett)

1 Q. Yes, the CMP?

2 A. I did.

3 Q. And will that do anything to change the conductivity in  
4 Laurel Fork at -- or Lilly Fork?

5 A. The research we are conducting now is also a valley fill,  
6 the numbers, the values coming out are roughly around -- it's  
7 typical, but roughly about 1,200 for a fill of that age. The  
8 process that we're doing for reclamation, besides the stream  
9 creation is a complete process. You have to do reclamation of  
10 the watershed, as well as the stream and, again, a forested  
11 watershed, but as part of that, we're doing compaction of the  
12 surface, and more extensive compaction and, in fact, you know,  
13 running equipment over it or, basically, the larger trucks and  
14 the idea is that we're trying to reduce the amount of water which  
15 will be going into that fill.

16 The other aspect of these valley fills, and this is typical  
17 of the ones in West Virginia as well, I believe, is that there's  
18 going to be a structural -- there's an under drain, which is  
19 usually, depending on fill size, maybe 16 feet by 8 feet and the  
20 drain goes up towards the top and the function of the under drain  
21 is more of a structural stability for the valley fills.

22 So our goal on this project is to reduce the amount of water  
23 and, one, we are closing off the top of that under drain and so  
24 basically, compaction over the top of that and, still, the  
25 structure is stable and we're compacting on top of that surface

Richard Warner - Cross (Lovett)

1 and then putting in the loose dump spoil and then growing the  
2 forest and so we do this in the valley and the idea behind that  
3 is that if we can reduce the amount of water that's going into  
4 the fill, then we'll reduce the amount of water that's coming out  
5 and reduce the quantity or loading of the conductivity as well.  
6 As that forest gets well-established, then we have those  
7 transformation rates as well. That's one of the goals of that  
8 project.

9 Q. But the reclamation -- the mitigation plan shows all the  
10 water is going right through the fill. You've -- that  
11 reclamation site has already been constructed, hasn't it? I  
12 mean they're not going to -- the soil is done there?

13 A. I think that's a mischaracterization of the reclamation  
14 plan.

15 Q. No, I meant the -- if I said the reclamation plan, I  
16 apologize. I meant the mitigation plan on the Laurel Fork site?

17 A. The mitigation plan has to do with compacting the soils,  
18 constructing --

19 Q. Compacting which soils?

20 A. The spoil. The spoil on top of the fills, of the valley  
21 fills, and installing the stream network on that.

22 Q. Well, the network isn't on a valley fill, is it? It's on  
23 -- I thought it was on spoil in a mining bench.

24 A. It's on top of spoil.

25 MR. LOVETT: Thank you. That's all I have.

Richard Warner - Redirect (Castle)

1 THE COURT: All right. Redirect.

2 MR. CASTLE: Yes, Your Honor.

3 **REDIRECT EXAMINATION**

4 **BY MR. CASTLE:**

5 Q. Dr. Warner -- I'm sorry. When we went on -- when you  
6 went on your site visit and you rode with Mr. Isabell, the  
7 question came up you didn't know the mix -- strike that.

8 We drove you around the site. I accompanied you on the site  
9 and we specifically took you to many areas on -- and I'm going to  
10 focus on Laurel right now, over where the mitigation site is.  
11 I'm sorry.

12 A. For clarification, Laurel is the --

13 Q. Mitigation site.

14 A. The mitigation site with the high walls?

15 Q. Yes, the high walls.

16 A. Okay. I wanted to be sure I'm at the right site.

17 Q. And that's what I want to get at. You observed --  
18 although Fola has reclaimed about 22 miles of that high wall,  
19 there's still several high walls left in that area, correct?

20 A. I understand there's about three miles left.

21 Q. Did you observe any high walls?

22 A. We saw high walls.

23 Q. And what did you see in that high wall from a geology  
24 structure? Did you see brown sandstone?

25 A. I saw it from a distance. Certainly, it would be brown

Richard Warner - Redirect (Castle)

1 sandstone cap. I didn't give enough attention to the high walls,  
2 sir.

3 Q. Okay. As you said, it's typical -- the geology is  
4 typical that you have a brown sandstones, gray sandstones in the  
5 area, Kentucky, in this area, and in that mining zone, I guess  
6 you would say?

7 A. That's typical for Appalachia.

8 Q. Okay. Now Mr. Lovett does a lot of work on mountaintop  
9 removal. What you saw over there was not a mountaintop removal  
10 mine, correct?

11 A. It is a contour job.

12 Q. And he was maybe getting a little confused, and I think  
13 you were trying to correct him, but I don't think you got your  
14 point across that you don't just take the whole top of the  
15 mountain and put in the valley fill as you would in mountaintop  
16 removal. You were trying to say that you --

17 MR. LOVETT: Objection, Your Honor. I don't mind him  
18 leading the witness, but he's answering the question for him.

19 THE COURT: Restate the question.

20 MR. CASTLE: I'll do a little better. I'm sorry, Your  
21 Honor.

22 BY MR. CASTLE:

23 Q. Explain the contour mining method to me, even if Fola  
24 didn't do it, but how they had to mine that in a contour mining  
25 method.

Richard Warner - Redirect (Castle)

1 A. From a regional site?

2 Q. We're talking about the mitigation site where you don't  
3 know what the top of the -- what the type of material is.

4 A. The standard practice for contour mining is you'll open up  
5 a certain area, and it's all by the mine plan, the distance, and  
6 so basically you'll have -- oftentimes, timber operations occur  
7 before mining because there are different landowners.

8 After a timber operation, there is a grubbing, basically  
9 taking out the stumps, the rest of the material like that, a  
10 grubbing operation, and then a removal of the overburden. Again,  
11 this is sequential. So we might have a hundred --

12 Q. Let's talk about -- I don't mean to be cocky, but I don't  
13 want to waste a lot of time here. Do you take the whole -- do  
14 you selectively pick out or, in this case, 25 miles, but let's  
15 just -- I don't know what Laurel is, but several miles. Do you  
16 selectively pick out the topsoil of the entire length of that  
17 valley and the sandstone and bury it in the bed of -- in the  
18 valley fields just so you can get in the valley fills?

19 A. No. It's a sequence of operations. You may have a face  
20 up that's 100, 150 feet, 200 feet, depending on your equipment  
21 operation, and you do your removal during that and you take your  
22 coal out of the various seams and you take your material out and  
23 then you progress. Again, it's a progression. It's a step, a  
24 wide progression, if you would.

25 Q. And the valley fill where a lot of the steps are, so you

Richard Warner - Redirect (Castle)

1 would be taking it from the top all the way down, the brown  
2 sandstone, gray sandstone and everything else, and putting it in  
3 the valley fill, but sooner or later, does that valley fill fill  
4 up?

5 A. Yes.

6 Q. So would you still be putting all the material in the  
7 valley fill or would you be putting the material on the bench?

8 A. Oh, no. You're required to back stack on the bench  
9 because you're required to do approximately the original contour.  
10 One of the things that we're --

11 Q. I'm sorry, but if you remember, in the Laurel Fork the  
12 high walls weren't completely reclaimed, and we're talking about  
13 the mitigation site, but the high walls weren't completely  
14 reclaimed, but there still had to be material on the bench,  
15 correct?

16 A. There's material on the bench, yes.

17 Q. And that's what you saw in the high wall area, still a  
18 lot of material stacked up, just the wall not completed?

19 A. Yes. They didn't finish the mining operation.

20 Q. And so if you were subsequently mining in a contour  
21 method, which this was, after you filled the valley fill up and  
22 that material that still is, you know, sequential, the topsoil,  
23 the brown sandstone, the gray sandstones, where would it be  
24 going?

25 A. You would be using it for your reclamation plan in your

Richard Warner - Redirect (Castle)

1 back stacking of high walls.

2 Q. And that's what would be on the benches and even though  
3 the high walls weren't completed over there, there was still  
4 material on the bench?

5 A. It looks like the mining operations just stopped so the  
6 material is still there.

7 Q. All right, and then because of that issue, when Mr.  
8 Isabell, and I'm -- and we had this discussion. I just wanted  
9 to remind you that we had a discussion on --

10 MR. LOVETT: Objection, Your Honor. I mean he --  
11 again, he's testifying for the witness at this point.

12 THE COURT: Pose a proper question.

13 BY MR. CASTLE:

14 Q. Did you have a discussion with Mr. Isabell on the type of  
15 material that was on the bench and what he used to reclaim the  
16 walls on Laurel, the mitigation site?

17 A. I do.

18 Q. And what did he tell you?

19 MR. LOVETT: Objection, Your Honor. It's hearsay.

20 THE COURT: Well, I'm going to allow it. He's an  
21 expert. He's entitled to rely upon other sources of information.

22 THE WITNESS: Could you repeat the question, please?

23 BY MR. CASTLE:

24 Q. What type of material -- when you had your discussions  
25 with Mr. Isabell about the materials, what were you told? How

Richard Warner - Redirect (Castle)

1 was it explained to you as to the type of materials that were  
2 used?

3 A. Mr. Isabell, obviously having worked with Dr. Berger, is  
4 aware of the sandstone, the brown sandstone, and, in Dr. Berger's  
5 view, the success of that. When looking -- when he was  
6 discussing the reclamation plan with me, he obviously had that  
7 knowledge and was selectively choosing spoil. That's what I was  
8 told.

9 Q. And I'm not leading, but I was in the same conversation  
10 and I remember him discussing --

11 MR. LOVETT: Objection, Your Honor. I mean, you know,  
12 Mr. Castle can't testify about something.

13 THE COURT: That's right, Mr. Castle. You can only ask  
14 him what he remembers and what he relies upon.

15 MR. CASTLE: I understand, Your Honor. I understand.

16 BY MR. CASTLE:

17 Q. If any topsoil -- you know, again, I don't think from a  
18 contour mining -- you know, as you stated from a contour mining  
19 standpoint, you don't grab all the topsoil and bury it in the --

20 MR. LOVETT: Objection again, Your Honor.

21 MR. CASTLE: He's made the statement, Your Honor, that  
22 you don't -- when I asked him the question --

23 THE COURT: Rephrase your question.

24 BY MR. CASTLE:

25 Q. Is the first thing you do when you go into a contour mine

Richard Warner - Redirect (Castle)

1 is take all the brown sandstone and the soil, topsoil, and take  
2 it to the valley fill so you can bury it in the valley fill?

3 A. No. That's not the first thing that you do.

4 Q. And could you do that in a contour method? Physically,  
5 could you do that if you were doing a contour method?

6 A. Again, it's a sequential operation where you have a face  
7 up that's, again, 150 feet. You're taking out the entire height  
8 material, depth material, and then you're moving on and so if I  
9 understand your question correctly, you're not going to go and  
10 strip off a mile of -- you can't do it by your mine plan, a mile  
11 of topsoil and the brown -- brown spoil material, the brown  
12 weathered spoil. You're required by your mine plan to do  
13 sequential operation and your face, therefore, is -- you know, I  
14 expect 150 to 200 foot in length as they're progressing around  
15 the contour.

16 Q. So by the process of elimination would there be brown  
17 sandstone and topsoil left on the mining benches?

18 A. That would be standard procedure.

19 Q. And just physically after you filled the valley fill up  
20 by the process of elimination would there be brown sandstone on  
21 topsoil?

22 A. I'm sorry. I finally understand your question. Your  
23 balance of materials is usually such that you would be bringing  
24 -- depending on your length of travel, you would be bringing some  
25 of those materials to the valley fill. Some of those materials

Richard Warner - Redirect (Castle)

1 would be used for back stacking as well.

2 Q. Thank you, and the material that was put back on the  
3 walls, was that material from that that you just described?

4 A. That would be the most economical approach and I expect  
5 that's what will be used.

6 Q. Besides reclaiming material from the bench, in your  
7 discussions with Mr. Isabell, besides reclaiming material from  
8 the bench, was there other ways of obtaining enough material to  
9 reclaim those walls because a lot of the material had been put  
10 in the valley fill. Was there other sources of material for  
11 that --

12 MR. LOVETT: Objection. He's just giving him so much  
13 information in every question.

14 THE COURT: Well, overruled. Go ahead.

15 BY MR. CASTLE:

16 Q. Was there other sources of material that he -- on-site  
17 that he obtained for that?

18 A. Again, it was incomplete operation so there was a great  
19 deal of spoil material that was not hauled off to the fill and it  
20 was basically an abandoned project as far as I could tell.

21 Q. Did you see any evidence of where he had gone up on top  
22 of the high wall and shot the wall down to obtain material?

23 A. Yes. A standard technique for high wall reclamation would  
24 be not just grabbing off material and trying to push it up  
25 against. Basically, you have a steep -- a vertical slope, as

Richard Warner - Redirect (Castle)

1 much as 150, 200 feet, and, obviously, your bench and one of the  
2 reclamation techniques is to remove some of the material,  
3 basically cut that soil back, if you would, and that's how you do  
4 in your -- especially when you come in after the fact. That's  
5 how you're going to be doing your backfill, your back stacking  
6 operation.

7 Q. Yes, but, Doctor, again, this -- you know, they inherited  
8 these high walls. Did you see evidence on top of the wall where  
9 they had gone back, what you just described, and got material  
10 from the top of the wall where they had shot the wall down?

11 A. It's the only way you could do it.

12 Q. And what's on top of that wall normally?

13 A. The upper stratus the brown sandstone.

14 Q. And topsoil?

15 A. A little thin layer of topsoil.

16 Q. Thank you. You saw your article on the gray sandstone  
17 and the brown sandstone versus a mix that was provided by Dr. --

18 MR. CASTLE: And, Your Honor, I've got to tell him why  
19 I call him Dr. Lovett. He called me Dr. Evil early on in our  
20 careers.

21 I apologize, Mr. Lovett.

22 MR. LOVETT: If I ever called him that, I certainly  
23 don't recall it. It was in a joking, personal way.

24 MR. CASTLE: So I apologize for my slip.

25 MR. LOVETT: I mean, you know?

Richard Warner - Redirect (Castle)

1 BY MR. CASTLE:

2 Q. Do you know what the question I asked was?

3 A. I have no idea. Something is something evil.

4 Q. So there was a source of slope on the -- of sandstone  
5 from the observations on the Laurel mitigation site?

6 A. Yes.

7 Q. Okay, thank you. And then you were comparing -- you were  
8 asked to compare the productivity in a gray sandstone versus a  
9 brown sandstone, but it doesn't appear from your observations --  
10 would the only mix have been a gray sandstone on Laurel Fork  
11 after it was reclaimed?

12 A. The only mix of reclamation would be gray sandstone.

13 Q. From your observations you saw as reclaimed and where the  
14 material had come from, wouldn't that be the only mix that was  
15 there, just gray sandstone?

16 A. No.

17 Q. Okay, thank you. You mentioned that by using only  
18 dozers, the material was not compacted and it would not have  
19 been compacted as you were describing in your --

20 A. My understanding, from talking to Mr. Isabell, is that he  
21 did not use trucks for hauling or -- which would obviously cause  
22 compaction of the spoil, that this was strictly a dozer operation  
23 where they pushed the spoil and limited the traffic on the --  
24 basically, it was a push, come back, get some more material and  
25 push again. That was my understanding.

Richard Warner - Recross (Lovett)

1 Q. Thank you.

2 A. It's a technique that we've used for reclamation as well  
3 for the creation of loose dump spoil.

4 Q. Okay, and Mr. Lovett or Dr. -- yes, Mr. Lovett said that  
5 the mitigation plan had already been completed. That's not  
6 correct?

7 A. That's not correct. There's still high wall left.

8 Q. Okay, thank you. I'm sorry. One other question. In the  
9 mitigation plan, the under drain that is in the existing fill is  
10 going to be eliminated as well on the mitigation site now?

11 A. I don't know.

12 MR. CASTLE: Okay. I'm sorry. Thank you, sir.

13 THE COURT: All right. Does the Corps have any  
14 questions?

15 MS. STOREY: No, Your Honor.

16 THE COURT: Mr. Lovett?

17 MR. LOVETT: Thank you.

18 **RECROSS EXAMINATION**

19 **BY MR. LOVETT:**

20 Q. There are differences between mountaintop removal sites  
21 and contour mines; is that right?

22 A. That's correct.

23 Q. Well, what determines the size of the excess spoil  
24 disposal area or the valley fill? What are the factors?

25 A. Okay, when you're doing your mine plan, you first identify

Richard Warner - Recross (Lovett)

1 where your coal seams are going to be, the tip of your coal  
2 seams. So you have a fair amount of knowledge of that. Usually  
3 -- or, especially, it's easier with a current site and when  
4 there's some information available and then what you basically do  
5 is spoil balance and one of the things that's being encouraged by  
6 the Corps and Smackra as well -- not Smackra, but by the mining,  
7 like DEP here, would be that we try to minimize the amount of  
8 spoil being put into a fill.

9 Q. All right. Really, what drives the amount of spoil, one  
10 of the most significant factors, is the mining ratio?

11 A. The spoil ratio, yes, sir.

12 MR. CASTLE: Objection, Your Honor. He's already said  
13 that there's no mining plan on Laurel Fork, in the Laurel Fork  
14 area there.

15 MR. LOVETT: And that's going to be my point, is to  
16 show that he doesn't know how this site was mined.

17 THE COURT: All right. Go ahead. I'll allow it  
18 briefly.

19 BY MR. LOVETT:

20 Q. You have to know the mining ratio to know -- you have to  
21 know how much excess spoil was generated to know how much spoil  
22 was generated on a site, right?

23 A. I believe you're referring to a stripping ratio.

24 Q. A stripping ratio? I'm talking about the ratio of  
25 disturbed material, cubic yards disturbed per ton of coal

Richard Warner - Recross (Lovett)

1 removal?

2 A. Okay. Overburdened coal ratio.

3 Q. Okay.

4 A. And your question, please?

5 Q. What really determines the size of the fills is that  
6 ratio, isn't it?

7 A. Actually, that's one of the factors, yes, sir.

8 Q. It's a very important factor, right?

9 A. It is, yes.

10 Q. Do you know what the mining ratio was on this Fola site?

11 A. I do not.

12 MR. CASTLE: Objection, Your Honor. That refers to the  
13 Laurel Fork site. There wasn't a mining ratio on --

14 MR. LOVETT: Well, I meant the Laurel -- I'm sorry.  
15 The record may not be clear, on the Laurel Fork site.

16 THE WITNESS: I don't know what the distribution ratio  
17 was.

18 MR. LOVETT: May I approach, Your Honor?

19 THE COURT: Yes, you may.

20 BY MR. LOVETT:

21 Q. You've seen this map. I just wanted to show you this  
22 reclamation map. You said the site wasn't reclaimed. We saw  
23 pictures yesterday of these channels, right, of the blue  
24 channels which, I guess, are intended to mimic intermittent  
25 streams?

Richard Warner - Recross (Lovett)

1 THE WITNESS: May I?

2 THE COURT: Go ahead.

3 THE WITNESS: As I remember, we saw --

4 THE COURT: Please speak up so the court reporter can  
5 hear.

6 THE WITNESS: Oh, yes, sir, Your Honor.

7 As I remember, we saw this wetland (indicating).

8 BY MR. LOVETT:

9 Q. Okay.

10 A. A portion of the stream below this wetland as well. I  
11 think that's what the video covered.

12 Q. Okay. So it was just above this -- what you call a  
13 sediment control pond, sediment pond, and what we saw were --  
14 was a video of the site above that?

15 A. We saw the video, I believe -- yes. We had a shot of the  
16 -- from looking downgradient through the wetland to the  
17 upgradient sides.

18 Q. Have you walked the rest of the length of the proposed  
19 mitigation site for the intermittent stream channels?

20 A. No. We drove a portion of that, but I can't specifically  
21 tell you which one.

22 Q. Do you know if this is already reclaimed? Do you know if  
23 the site where these channels are going to go is already  
24 reclaimed?

25 A. The part that I saw, a portion of it has been.

Richard Warner - Recross (Lovett)

1 Q. Okay.

2 A. But as far as the compaction of the flood plain for the  
3 stream bed or for the natural channel is not installed.

4 Q. But they couldn't build it that much higher now because  
5 that would alter the channel significantly, right? The banks of  
6 the channel can't be built up any more because that would alter  
7 the stream channel; is that right?

8 A. Oh, I understand your question. The -- no, that's not  
9 correct.

10 Q. Okay.

11 A. If we look at how the spoil placement was on the sides  
12 away from the riparian zone and then as we're approaching the  
13 riparian zone, the compaction of just the flood plains, 75 foot  
14 was completed, there's loose dump spoil on the sides, and as  
15 they're reclaiming, they're creating this stream, the natural  
16 stream, and, again, the natural stream design technique, and they  
17 would be moving materials into that riparian zone as well and --  
18 because that the flood plain is the Smackra requirement is not  
19 what a natural stream would have, if I understood your question  
20 properly.

21 Q. Right. So that hasn't been created yet then, that stream  
22 channel?

23 A. Just the flood plain is all I saw.

24 Q. Now --

25 MR. LOVETT: May I approach again to show the map?

Richard Warner - Recross (Lovett)

1 THE COURT: Yes.

2 BY MR. LOVETT:

3 Q. Now you're describing it as the flood plain. Is that  
4 because this is fairly flat?

5 MR. CASTLE: Your Honor, I've got to object. I've not  
6 qualified this witness in that. He's not familiar with the --  
7 he looked at the mitigation plan from the forestry aspect. He's  
8 not familiar with the channels.

9 MR. LOVETT: I don't mean to ask him if it's  
10 technically classified as a flood plain.

11 BY MR. LOVETT:

12 Q. I just mean do you call it that because it's not very  
13 steep through here?

14           A.    No, that's not the reason. The reason I call it a flood  
15 plain is because it was a flatter area, again, around 75 foot,  
16 maybe 100 foot in width, where the stream would selectively be --  
17 the natural channel designed was selectively chosen to use a  
18 portion of that.

19 THE COURT: I'm going to overruled the objection. I  
20 think he's testifying based on his knowledge of the Compensatory  
21 Mitigation Plan and other documents and his visual observations;  
22 is that right?

23 THE WITNESS: Yes, sir, Your Honor.

24 MR. CASTLE: Actually, Your Honor, he's testifying on  
25 Fola 4. He's got the things confused. He's testifying on Fola

Richard Warner - Recross (Lovett)

1 4.

2 THE COURT: No. He's pointing to Laurel.

3 MR. LOVETT: I'm pointing to a map from the Laurel Fork  
4 mitigation site.

5 MR. CASTLE: Sorry.

6 BY MR. LOVETT:

7 Q. So there is a sediment basin there; is that right?

8 A. A wetland.

9 Q. A wetland? Yesterday, you didn't want to call it a  
10 wetland. What's up with that? Okay, a wetland. So that area  
11 has to be pretty -- it can't be too steep or that wetland  
12 wouldn't stay there, right?

13 A. At the far end of the wetland there was a berm which  
14 caused the back water.

15 Q. But you've looked at the contour lines here. You see  
16 that is pretty -- I mean it's not steep there, is it? On the  
17 contour lines on this map, if you want to look, and I don't know  
18 if we decided yesterday, but I think maybe it was 40 feet.

19 It's a Fola map. It doesn't say on it, as far as I can  
20 tell, what the contours are, but there are no contour lines that  
21 I can see. Maybe one.

22 A. It's --

23 THE COURT: You have to speak up, Doctor.

24 THE WITNESS: It's hard to tell. Throughout that area  
25 it looks like -- it's hard to tell throughout that area. It

Richard Warner - Recross (Lovett)

1 looks like four or five contour lines.

2 BY MR. LOVETT:

3 Q. Well, but around -- there may be four or five contour  
4 lines if you go all the way to the top, but from the -- what you  
5 call the wetland down, or -- I don't even know what the scale is  
6 here, but for one inch equals 600 feet -- oh, for at least a  
7 couple of inches there are no contour lines, right?

8 A. I find it hard to see on this map.

9 Q. Okay. Now why did you do research? You say that -- I  
10 think Mr. Castle was -- why did you do research on the gray  
11 sandstones only?

12 A. We didn't do research -- oh, okay.

13 Q. In your paper?

14 A. Yeah. We were looking at -- it was driven by a decision  
15 predominantly from Doc Graves and discussion about what is the  
16 best media for tree growth, but it's a little bit more than that.  
17 We look at the various ones. Certainly, the work from Dr. Berger  
18 indicated that the brown sandstone was his preference.

19 Q. Right, and is it fair to say that several years ago there  
20 was hope in the mining industry that the data would show that  
21 the trees grew as well in gray sandstone as on the mix?

22 A. Okay. We need to put this all in perspective.

23 Q. That's fair.

24 A. The data that you showed me was from one of our sites.

25 Q. Sure.

Richard Warner - Recross (Lovett)

1 A. One of the sites on Bent Mountain.

2 Q. Sure.

3 A. Again, we have data from other sites that were mixed  
4 overburden and in those sites we have had better success.

5 Q. With mixed overburden?

6 A. With mixed overburden.

7 Q. I'm asking you about the gray now, though. Wasn't it the  
8 hope of the mining industry when you started your research that  
9 it would be able to use just the gray sandstone and not have to  
10 save the brown, too?

11 A. I don't know what the hope of the mining industry was,  
12 but, again, the site -- this is the Star Fire site that I  
13 referred to as the mixed overburden. It's basically a  
14 run-overburden and, specifically, on the one site it was  
15 predominantly gray.

16 Q. Well, on the paper we have before us, and it's all I have  
17 before me, what exactly is the mixed brown weathered sandstone  
18 to gray sandstone that is the mixed result in the -- for tree  
19 height on the tables there on page 35?

20 A. I'm trying to recall if we put the actual mix in this  
21 paper. I believe the focus of this paper was predominantly on  
22 trees. I would have other documents that have the mix, but I  
23 don't have --

24 Q. Do you know what the mix is?

25 A. I can't recall.

Richard Warner - Recross (Lovett)

1 Q. Is it more brown sandstone or gray shale?

2 A. For the mix?

3 Q. Uh-huh.

4 A. It would be -- I would say more gray sandstone.

5 Q. Gray sandstone?

6 A. Yes.

7 Q. Okay. Is there gray sandstone on the Fola -- or on the  
8 Laurel Fork site?

9 A. You know, I'm, quite frankly, getting the sites mixed up.

10 Q. The mitigation site with the map, do you know if there's  
11 gray sandstone there or if it's gray shale?

12 A. That would be both.

13 Q. Okay.

14 A. Predominantly -- I'm starting to recall the mix on the  
15 Bent Mountain one.

16 Q. Okay.

17 A. And my understanding was it was approximately -- well, I'm  
18 just guessing. I would have to look it up.

19 Q. A mix is pretty critical, though, isn't it, the  
20 percentage? That's something you know somewhere else and it's  
21 an important thing to know, right?

22 A. From our Star Fire research, we found that we could do --  
23 we call it mine run spoil successfully.

24 Q. Do you have some of those data with you here?

25 A. I do not.

Richard Warner - Recross (Lovett)

1                   THE COURT: What does that mean?

2                   THE WITNESS: Your Honor?

3                   THE COURT: What does mine run spoil mean in the  
4 context of his question about the mix?

5                   THE WITNESS: Oh, yes, Your Honor. It's basically,  
6 again, when we take our layers off, geologically speaking,  
7 they'll have a brown cap, you'll have some of the gray sandstone,  
8 and it will have these inner bedded shales and so we'll have that  
9 entire mix.

10                  THE COURT: So it would roughly be the mix you would  
11 expect from just a vertical cut of a given area?

12                  THE WITNESS: That's right.

13                  BY MR. LOVETT:

14                  Q. How many years has that been going on now? How many  
15 years of data do you have for that?

16                  A. For the Star Fire project?

17                  Q. Uh-huh.

18                  A. Some plots we put in 1996, some in 1997. It was  
19 predominantly those.

20                  Q. And you don't have -- okay. Well, how is the -- how is  
21 that mix doing compared to the brown weathered sandstone mix  
22 that we see here?

23                  A. I don't recall.

24                  Q. You don't know? Okay.

25                  A. No. I don't recall.

Richard Warner - Recross (Lovett)

1 MR. LOVETT: Thank you.

2 THE COURT: Anything else?

3 MR. CASTLE: No, sir, Your Honor.

4 THE COURT: All right. Doctor, you may step down.

5 This is a good time for a break. We'll stand in recess for  
6 about ten minutes. Get your next witness ready.

7 (Recess taken.)

8 MR. CASTLE: Your Honor, Fola rests.

9 THE COURT: All right. Any rebuttal evidence?

10 MR. LOVETT: Well, yes, Your Honor. We weren't  
11 prepared for Fola to rest. They told us they had three more  
12 witnesses. Can we take a break?

13 MR. CASTLE: I lied.

14 THE COURT: Which time did you lie?

15 MR. CASTLE: The one about the three. No, it's --

16 MR. LOVETT: If I can just have 15 minutes because I  
17 just -- we were -- I will tell you I will move very quickly  
18 through rebuttal.

19 THE COURT: All right. Well, you've rested then.

20 I'll give you until a quarter after. That's about ten  
21 minutes.

22 MR. LOVETT: Thank you, Your Honor. I'm sorry.

23 I had hoped you would have told me that.

24 MR. CROCKETT: If I had known, I would have.

25 THE COURT: That's fine. We'll stand in recess until a

Andrew J. Miller - Direct (Lovett)

1 quarter after.

2 (Recess taken.)

3 THE COURT: All right. Mr. Lovett?

4 MR. LOVETT: Thank you, Your Honor. I have three  
5 witnesses and I will move through them very quickly, Your Honor.

6 THE COURT: Okay. Let me forewarn you that at noon the  
7 magistrate judge has a proceeding set in here and he won't mind  
8 if we go a little past that, but if we're going to end up having  
9 to be here a significant amount of time after that, we'll  
10 probably just have to go ahead and take a lunch break.

11 MR. LOVETT: Okay. I'd call Andrew J. Miller.

12 THE COURT: All right.

13 **ANDREW J. MILLER, PLAINTIFFS' REBUTTAL WITNESS, SWEORN**

14 COURTROOM DEPUTY CLERK: Have a seat, please.

15 MR. LOVETT: I'll mark his CV as exhibit 19.

16 **DIRECT EXAMINATION**

17 **BY MR. LOVETT:**

18 Q. Good morning, Dr. Miller.

19 A. Good morning.

20 Q. Briefly describe your education.

21 A. I received my Bachelor's degree in geological sciences  
22 from Brown University, my Ph.D. from Johns Hopkins University in  
23 the Department of Geography and Environmental Engineering.

24 Q. What year did you receive your Ph.D.?

25 A. 1983.

Andrew J. Miller - Direct (Lovett)

1 Q. And tell me quickly what you've done since 1983.

2 A. I am in the Department of Geography and Environmental  
3 Systems at the University of Maryland, Baltimore County. I am  
4 currently Graduate Program Director of our master's and Ph.D.  
5 program. I've done research on the hydrology, hydraulics and  
6 geomorphology of large floods both in central Appalachia, as well  
7 as in urban environments, and I've published papers in a number  
8 of professional journals. I currently have about \$8 million  
9 dollars of funded research projects on which I am the principal  
10 investigator mostly for the National Science Foundation.

11 Q. Most of it is through the National Science Foundation?

12 A. Yes.

13 Q. And have you published extensively on stream hydrology?

14 A. Yes. I've published on stream hydrology and  
15 geomorphology.

16 Q. And geomorphology?

17 A. And geomorphology.

18 MR. LOVETT: I would move to have Dr. Miller qualified  
19 as an expert in hydrology and for stream geomorphology.

20 THE COURT: All right. Any objection?

21 MS. TURNER: No objection.

22 THE COURT: You may proceed.

23 BY MR. LOVETT:

24 Q. Dr. Miller, have you been sitting in the courtroom the  
25 last couple of days?

Andrew J. Miller - Direct (Lovett)

1 A. I have.

2 Q. Did you hear Mr. Isabell testify yesterday?

3 A. I did.

4 Q. Did you hear Mr. Isabell explain how the channel of the  
5 stream will be constructed on the Laurel Fork mitigation site?

6 A. Yes.

7 Q. And, by that, I mean what do you understand that the --  
8 how will the stream hold water, as you understand it?

9 A. What I heard him say is that they will direct water from  
10 the seep coming from the coal seam at the headwall, direct that  
11 into the channel and then, because of concerns about water  
12 seeping out the bed of the channel, they will compact it so that  
13 it is impermeable so the water will not leak out the bed of the  
14 channel.

15 Q. And do streams in -- natural streams in this region have  
16 a compacted channel like that?

17 A. No. That would not be the normal natural configuration.

18 Q. And what problems could such a compacted -- what problems  
19 will such a compacted --

20 A. Well, in virtually any natural stream, whether it's high  
21 gradient or not, but certainly any high gradient streams as well,  
22 you're going to have exchange between the subsurface and the  
23 surface. The surface flow is fed by ground water flow, as well  
24 as surface runoff, and if you basically cut off the communication  
25 between the channel bed and the ground water around it, then as

Andrew J. Miller - Direct (Lovett)

1 you work your way downstream, you're no longer having that  
2 exchange.

3 Q. And why is that loss important?

4 A. Well, there are all kinds of biogeochemical processes  
5 going on there and the feeding of water into the channel is  
6 something that's cumulative as you work your way downstream. So  
7 you're basically just making the stream into a conduit to  
8 transport water that came from the head.

9 Q. And, for instance, in the summertime if water -- if the  
10 stream is taking water from the subsurface, is that water a  
11 certain temperature?

12 A. It's generally going to be much cooler than the water  
13 stored at the surface.

14 Q. And is that important, the cooler temperature, to the  
15 ecosystem?

16 A. Well, temperatures certainly have effect on ecology.

17 Q. Okay, and how do you understand that the water will be  
18 fed into these streams on this site?

19 A. As I said, my understanding is that most of the time  
20 you're taking water from seep -- a seep, routing it into the head  
21 of this channel and simply sending it down the channel and that  
22 you don't have exchange with the ground water because the  
23 impermeable bed of the stream.

24 Q. It's not just from the seep, but first it sits in a pond  
25 or a wetland, doesn't it?

Andrew J. Miller - Direct (Lovett)

1 A. That's what I understood him to say.

2 Q. Okay.

3 A. In addition, you might have surface runoff, of course, by  
4 overland flow during a storm.

5 Q. And, again, just to wrap it up, that's a much different  
6 kind of ecological system from the ones that we find?

7 A. It's quite different from what you would typically see in  
8 a high gradient headwater stream in Appalachia.

9 Q. And the coal company -- in Fola's case, I think it was  
10 Dr. -- or Mr. Isabell who testified, I think it was, and do you  
11 understand if Fola has any data on the projected flow on the Ike  
12 Fork site -- excuse me, on the current flow on the Ike Fork  
13 site?

14 A. I thought I heard Mr. Isabell testify that he had no  
15 hydrologic data.

16 Q. What about predicted flow on the Laurel Fork mitigation  
17 site?

18 A. I haven't seen any data on predicted flow there. There  
19 may be predicted flows for high flows, but nothing about the  
20 entire sequence of flows you get over the course of a year.

21 Q. And is that a significant defect in the mitigation plan?

22 A. Yes, because if you're going to have a functioning stream  
23 ecosystem, you have to know something about the timing, duration  
24 and frequency of flows in various magnitudes.

25 Q. It's crucial?

Andrew J. Miller - Direct (Lovett)

1 A. It's crucial.

2 Q. It's crucial, right?

3 A. It's basic. There's also no data on sediment.

4 Q. And the fundamental hydrologic function of a stream is  
5 flow, right?

6 A. Yes. Flow, sediment transport, transport of organic  
7 matter, transport of nutrients.

8 Q. Now what's the problem -- what problem does the failure  
9 to understand the flow create for the mitigation, for  
10 post-mitigation?

11 A. Well, among other things, if you don't know what the flow  
12 is, you don't know how to design the stream. You don't know what  
13 size the stream ought to be. You don't know what shape it ought  
14 to be. The natural formation of the stream is due to a range of  
15 factors having to do with the frequency, timing and duration of  
16 flows, the amount, size and timing of delivery of sediment from  
17 upstream. You have to know something about what the gradient is  
18 going to be.

19 There is a whole range of factors that are mutually adjusted  
20 in a natural stream system. If you have no information on the  
21 flow or on the sediment, you really don't have a sound basis for  
22 designing something you don't know if it's going to work or not.

23 Q. Is it necessary to know what the flow in sediment  
24 transport will be to know how big to make the channel?

25 A. That would be the conclusion of most geomorphologists.

Andrew J. Miller - Direct (Lovett)

1 Q. Is it your conclusion?

2 A. Yes.

3 Q. Are there geomorphologists who would disagree with that?

4 A. The general consensus of a pretty substantial body of  
5 literature published over the last eight to ten years, let's say,  
6 is that you need to have information on function, on  
7 hydrogeological function, including function and sediment, in  
8 order to have an idea of how a channel will perform.

9 Q. Now let's say that Fola designs the channel and it is too  
10 big for the flow that will ultimately come. What will be the  
11 problem?

12 A. If the channel is too large, then the way that the water  
13 and the sediment move through the channel are going to be  
14 affected by that. If you have a substantial amount of sediment  
15 coming in, you may get aggradation of the bed, you may get a  
16 change in the typical particle size of the bed. You may alter  
17 some of the functions that are associated with that; although, in  
18 this case, of course, there is no exchange of the subsurface  
19 anyway.

20 Q. What's the problem with sediment building up in the  
21 stream if the channel is too large?

22 A. Well, I would defer to the ecologists in terms of the  
23 ecosystem impacts of that, but clearly, most natural streams,  
24 again, are transporting sediment that's provided to them when you  
25 have a mutual adjustment of factors. So if you build up sediment

Andrew J. Miller - Direct (Lovett)

1 in the stream, you can fill in the channel. You can cause flow  
2 to be going out of the channel into the surrounding area. You  
3 can completely alter the way the stream behaves.

4 Q. What if the channel is too small for the flow?

5 A. It it's too small, you may get a situation where the  
6 stream incises or widens or starts to become unstable. You may  
7 get a situation where you get flooding coming out of the channel  
8 and spreading out into other areas.

9 Q. Could it cause pollution downstream?

10 A. That would depend upon what is being transported.

11 Q. Okay. So I think you described what -- even if -- even  
12 if Fola has created a conduit here that carries water in a  
13 stable channel, does that make this a functioning stream, even  
14 if they got the channel size right?

15 A. We have irrigation canals, drainage ditches, concrete  
16 channels, all kinds of conduits that carry flow all over the  
17 country. The notion that simply by carrying water and not  
18 falling apart when you have a functioning stream does not make  
19 sense.

20 MS. TURNER: Your Honor, I would like to object to the  
21 extent that this is going beyond what he just described his  
22 expertise to be, which was only channels. Physical structure --  
23 physical channels have nothing to do with the ecosystem. So to  
24 the extent he is going there, I just -- I want to object.

25 THE COURT: Yes. I think you limited his expertise to

Andrew J. Miller - Direct (Lovett)

1 the hydrology. So --

2 MR. LOVETT: Absolutely. Hydrology is part of the  
3 ecosystem and he's only talking about the geomorphological and  
4 hydrological functions of the ecosystem.

5 THE COURT: So restrict your answer to that subject.

6 THE WITNESS: Sure. My only point was that you have  
7 all those other kinds of structures that are not naturally  
8 functioning streams and they don't -- there is no reason to  
9 assume that they replicate the functions of natural streams.

10 BY MR. LOVETT:

11 Q. And what are the hydrologic and -- some of the hydrologic  
12 and geomorphological functions of natural streams that you can't  
13 -- that won't be mimicked by a project like this?

14 A. Well, as I said, a stream is adjusted to carry the natural  
15 sequence of flows that are entering and there's something we call  
16 the natural flow regime, which has to do with the duration,  
17 timing and frequency of flows. There's the provision of sediment  
18 from the upstream watershed, channel size, shape, caliber of bed  
19 material and is all adjusted in accordance with what's coming  
20 from upstream.

21 If you have manipulated that or altered it in a fundamental  
22 way, and I would say in this watershed it's been altered in a  
23 very fundamental way, you don't really have a good way to predict  
24 how that channel is going to behave and the exchange of water,  
25 for example, from a subsurface. The other witnesses will testify

Andrew J. Miller - Direct (Lovett)

1 to the ecological and biogeochemical aspects of that, but that  
2 clearly is part of a functioning stream ecosystem. It's not just  
3 the water and sediments. It's those other things, too.

4 Q. Have you seen the map of the Laurel Fork mitigation site  
5 that we've been referring to throughout? I don't know the  
6 exhibit number.

7 A. I've seen it.

8 Q. It's a Fola exhibit. Have you seen it? Can you tell  
9 what the gradient of the created stream will be from that map?

10 A. I was not able to measure the gradient directly from it.  
11 I can say that it does not look as though it were -- it would be  
12 typical of what you would see in a high gradient headwater stream  
13 and its watershed. Typically, you get the highest gradient up at  
14 the head of the drainage network and then as you work your way  
15 down, there's a gradual decrease in slope.

16 Here, we have a system where they may have very high  
17 gradients up at the heads of some of these channels, which are  
18 places where we don't even know if there was a channel before  
19 because we don't know what the original topography was and then,  
20 once you make your way down into some of these other areas, you  
21 have a very low gradient. Then you're going to come down and  
22 cross over a valley fill. So it doesn't look at all like the  
23 gradient of a natural stream.

24 Q. Let me restrict your testimony to the area -- not the  
25 valley fill, but just the area on the created site because I

Andrew J. Miller - Cross (Turner)

1 don't want to cause any confusion. Just the mitigation --

2 A. Again, the other side has not provided long profiles to  
3 show what the slopes of the stream look like as you go from the  
4 head down to the lower part of the watershed, but what I can see  
5 from those contours doesn't look like most natural stream systems  
6 I've seen.

7 Q. And, you know, a glaring -- you know, the wetland or  
8 sediment control pond in the middle of the stream channels  
9 there, is that --

10 A. Yes. I presume those are features as a result of the way  
11 that the excavation was done and the way the mine land was  
12 reclaimed. They are certainly not things you would normally see.

13 Q. You would never find that in a high gradient stream; is  
14 that right?

15 A. No.

16 Q. Did you hear Mr. Noble testify?

17 A. I did.

18 Q. Okay, and in his description as to how the IFFA works, do  
19 you see anything or did he convince you of anything that would  
20 -- any of the structures in that IFFA that would serve as  
21 surrogates for the stream functions you've just described?

22 A. None.

23 MR. LOVETT: That's all I have, Your Honor. Thank you.

24 THE COURT: All right. Cross?

25 MS. MORRIS: No questions, Your Honor.

Andrew J. Miller - Cross (Turner)

## **CROSS EXAMINATION**

BY MS. TURNER:

Q. Good afternoon, Mr. Miller.

A. Good morning.

Q. My name is Allyn Turner. I'm here for Fola Coal Company. I just have a few questions for you.

You indicated that you are familiar with this mitigation plan that was depicted on the map. I think that's Fola 2 or Fola 1?

A. That's not Fola 2. That's Laurel Fork, isn't it?

Q. No, I'm sorry. I meant exhibit number.

A. Oh, okay. Familiar with it to the extent of having looked at this map and formed a judgment just based on what it shows.

Q. Based only on the map?

A. I have not been out to the field on this site, no.

Q. Okay. You haven't been out on the field at the Ike Fork site?

A. No, I have not.

Q. Okay. Have you been on any mine site in Appalachia?

A. I have been on some mine sites in Tennessee sometime ago.

Q. Okay. Do you understand that the mitigation plan is mitigating for ephemeral reaches, high gradient ephemeral reaches?

A. I understand that's what it's supposed to mitigate for.

Q. And do you understand that often those ephemeral reaches

Andrew J. Miller - Redirect (Lovett)

1 have bedrock as substrate?

2 A. In ephemeral and intermittent channels and sometimes even  
3 in perennial channels, you can have a mix of bedrock. You can  
4 also have colluvial material. You have to go a fair distance  
5 downstream to have eluvial, but yes, it's all a mix of those.

6 MS. TURNER: I think that's all I have.

7 THE COURT: All right.

8 MR. LOVETT: Very quickly.

9 **REDIRECT EXAMINATION**

10 **BY MR. LOVETT:**

11 Q. You reviewed not only the map, but you reviewed the CMP  
12 and other documents, correct?

13 A. I looked at the CMP, yes. I -- yes.

14 Q. Are hydrology and geomorphology different in Appalachia  
15 -- well, strike the question.

16 MR. LOVETT: That's all.

17 THE COURT: All right. Anything else?

18 You're excused, Doctor. Thank you.

19 All right.

20 MR. LOVETT: Emily Bernhardt.

21 THE COURT: You're already under oath. You may resume  
22 the stand.

23 **EMILY BERNHARDT, PLAINTIFFS' REBUTTAL WITNESS, PREVIOUSLY SWORN**

24 **DIRECT EXAMINATION**

25 **BY MR. LOVETT:**

Emily Bernhardt - Direct (Lovett)

1 Q. Dr. Bernhardt, you heard testimony and there were some  
2 articles circulated during previous hearings about -- or during  
3 the previous part of the hearing about some stream creation  
4 projects. Have you published papers on high gradient headwater  
5 streams?

6 A. I have. I conducted my dissertation in high gradient  
7 streams.

8 Q. Can you remind the Court what high gradient headwater  
9 stream expertise you have?

10 A. I conducted my dissertation and research at the Hubbard  
11 Brook Experimental Forest in New Hampshire and those were -- so  
12 high gradient streams in the white mountains of New Hampshire. I  
13 currently am an investigator with the Coweta Hydrologic  
14 NSF-funded research site in Haywood County in North Carolina, in  
15 western North Carolina.

16 MS. TURNER: Your Honor, I believe this is already in  
17 the record.

18 THE WITNESS: Well, you said -- actually, you said --

19 THE COURT: Well, hold on. It's rebuttal. Go ahead.

20 THE WITNESS: And I've also taught a course in stream  
21 ecology in the Rocky Mountains of Colorado.

22 BY MR. LOVETT:

23 Q. Do you also work in wetlands?

24 A. I am doing some work in the coastal plain of North  
25 Carolina in headwater stream wetland complexes where it's

Emily Bernhardt - Direct (Lovett)

1 difficult to really define the boundary between those two  
2 systems.

3 Q. And did you read the papers that were circulated in the  
4 hearing about these flood plain streams?

5 A. I did. The paper that was circulated by Mark Brinson --  
6 well, Brinson is a co-author with Richard Reinhardt, I believe,  
7 but are systems that are very similar to the one that I'm working  
8 on in the Department of Energy research arena.

9 Q. Slow down a little bit.

10 A. Sorry. I'm sorry.

11 Q. All right. Are those coastal plain streams anything like  
12 the headwater streams?

13 A. I would say high gradient headwater streams are the most  
14 -- the least wetland-like streams you can find.

15 Q. Are high gradient Appalachian -- then high gradient  
16 Appalachian streams aren't wetlands; is that fair?

17 A. No. You would not -- you would not call them wetlands.  
18 They're streams.

19 Q. What have you learned about the streams of Ike Fork from  
20 reading the CMP, hearing the testimony, and the EID?

21 A. Well, let's see. The information that we have is based on  
22 some descriptions of water quality data from the late 1990s.

23 Q. So is that old data?

24 A. Old data. There may be newer data. There's a table that  
25 appears, but I don't know when those data were from. There

Emily Bernhardt - Direct (Lovett)

1 apparently have been more recent samples, but I'm not sure that  
2 I've seen that data. There are single macroinvertebrate  
3 assessment scores that appear in the document.

4 Q. Is a single macroinvertebrate score insufficient, in your  
5 opinion?

6 A. I think so, a single point in time. Particularly, on a  
7 ephemeral or intermittent channel where flow is so variable over  
8 the course of a year, I think that is insufficient.

9 Q. Insufficient even to characterize the structure of the  
10 stream?

11 A. Yes.

12 Q. Okay.

13 A. And we have the scores from the worksheets from the IFFA,  
14 the application of the IFFA document, that tells us something  
15 about slope, bedrock, et cetera, but, again, it's not completely  
16 clear to me where those -- where those measurements were made  
17 relative to all the impact activities.

18 Q. What about flow?

19 A. There are single-point estimates of flow from a couple of  
20 places. Again, I don't know exactly where they are within --  
21 within the Ike Fork trench. It doesn't -- it doesn't say.

22 Q. Talking about Ike Fork only?

23 A. Yeah. There are some individual estimates of flow.

24 Q. But there's been no assessment to -- there's been no  
25 attempt to assess --

Emily Bernhardt - Direct (Lovett)

1 A. No assessment of flow over time, flow duration occurrence.

2 Q. Now you testified earlier that the proposed mining  
3 activity in Ike Fork would contribute to existing water quality  
4 problems in Lilly Fork. Have you heard anything in subsequent  
5 testimony that would alter your opinion?

6 A. What I said two days ago was that most mining activity  
7 contributes to high conductivity, high sulfate, and elevated  
8 trace metal concentrations in the water that exits. Watershed is  
9 impacted by valley fills and I'm glad to hear that there's  
10 research to minimize that, but I think it's still very clear from  
11 the testimony that we've heard that we will see increases in  
12 those constituents even in the best case scenario of a valley  
13 fill.

14 Q. Well, in conclusion, will the activities in Laurel Fork  
15 mitigate for the -- for that impact?

16 A. The activities in Laurel Fork, I do not believe, will -- I  
17 don't -- I don't see how they can address those issues. So we --  
18 we have data from the West Virginia DEP showing very, very high  
19 conductivity, high sulfate concentrations, and occasionally  
20 elevated trace metal concentrations coming out of Laurel Fork and  
21 no reason to think that the mitigation activities in Laurel Fork  
22 will at all change that.

23 Q. What about the sub -- the loss of subsurface flow -- or  
24 it's not a loss. Let me rephrase that. What about the failure  
25 of the mitigation of streams to take subsurface flow, is that a

Emily Bernhardt - Direct (Lovett)

1 problem?

2 A. Well, actually, when I testified before, I wasn't clear on  
3 where the created channels were going to be. It wasn't clear if  
4 they were going to be upgradient above the fill or actually on  
5 the fill and I now know that they will, in fact, be built on the  
6 fill.

7 Q. Okay.

8 A. So that does lead me to have more concerns that I had  
9 previously about what the water quality would be like in those  
10 channels, in the wetland that's feeding those channels, and it's  
11 clear that there are basically going to be two major routes by  
12 which water moves through this -- the Laurel Fork watershed.

13 You'll either have water that's coming off those high  
14 gradient coal seams into the wetland or overland flow entering  
15 the channel and exiting the watershed through the channel. It's  
16 not clear -- still not clear to me what happens between the  
17 lowest point of the created channels and the actual mouth of  
18 Laurel Fork, but, anyway, that water will be coming off overland  
19 flow and subsurface runoff just up in the upper reaches. That  
20 water is likely to be very warm, particularly that that's coming  
21 out of the wetland.

22 Q. Why would it be warmer?

23 A. Because it's exposed to high light and at least until you  
24 have the recovering tree canopy, it's going to get a lot of solar  
25 energy.

Emily Bernhardt - Cross (Turner)

1 Q. That's warmer in the summer. What about in the winter?

2 A. In the winter it should be colder and you should see  
3 bigger fluctuations in the winter and, also, because we don't  
4 have a lot of subsurface exchange in that -- in a small stream  
5 like this, that the zones of exchange can be really important to  
6 thermal refugia and so particularly when a stream dries up. So  
7 areas where you have seeps it can be very important providing  
8 that habitat where the macroinvertebrates can persist until the  
9 water enters the channel again and I think that we will lose that  
10 in these created channels or we won't -- we won't build that into  
11 these created channels and I -- can I continue? I was going to  
12 say --

13 Q. You may, yes.

14 A. -- the second route that water is going to move through  
15 this watershed, I assume, is how it has been moving, which is  
16 through the fill -- not through the fill, through the spoil.

17 Q. Right.

18 A. And we already know what the quality of that water is.

19 Q. How do we know that?

20 A. Because we have data from the West Virginia DEP showing  
21 us.

22 Q. And you testified about that the other day?

23 A. I did, yes.

24 Q. Okay. So what do you think of the habitat quality of --  
25 is it likely to be in this created stream channel?

Emily Bernhardt - Cross (Turner)

A. Well, it's -- based on information that we have, I expect that it will be very different from the conditions of the streams at Ike Fork. It's going to be a hot channel with a lot of boulders, potentially much lower in gradient than other sources that we've seen at Ike Fork and it's not going to be receiving the same organic matter input that you're seeing in Ike Fork and you also aren't going to have subsurface water entering throughout the channel as you would in the Ike Fork streams.

MR. LOVETT: Thank you.

THE COURT: All right. Does the Corps have questions?

MS. MORRIS: No, Your Honor.

THE COURT: All right.

## CROSS EXAMINATION

BY MS. TURNER:

Q. Doctor, have you ever been on a mine site?

A. I have not.

Q. Have you visited high gradient streams in Clay County or Appalachia?

A. I have been to high gradient streams in the Appalachians,  
yes. I'm from western North Carolina.

Q. Okay. Hold on just a second.

I think I need -- Ms. Bernhardt, you've offered a number of opinions here today about things you don't know. Do you know if it would -- you don't know if this mitigation plan is going to work or not?

Margaret Palmer - Direct (Lovett)

1 A. I don't think anyone knows if this mitigation is going to  
2 work or not.

3 Q. You haven't offered an opinion that it won't work?

4 A. I think there is very, very high uncertainty about what  
5 this mitigation plan will accomplish.

6 Q. You haven't offered an opinion that it won't work?

7 A. I'm -- is that a question?

8 Q. Yes.

9 A. Are you -- are you asking me to say yes or no to have I  
10 offered an opinion?

11 Q. Yes.

12 A. I'm sorry, could you -- I'm not sure what you want me to  
13 say here.

14 Q. Yes or no?

15 A. Have I offered an opinion about whether --

16 Q. You haven't offered an opinion that it won't work?

17 A. I will say that my opinion is that it is very unlikely to  
18 replace the functions or the structure of the streams that are  
19 being filled in Ike Fork.

20 MS. TURNER: Thanks.

21 THE COURT: All right. Any other questions?

22 MR. LOVETT: No, Your Honor.

23 THE COURT: You may step down.

24 MR. LOVETT: Dr. Margaret Palmer.

25 THE COURT: All right. You're still under oath.

Margaret Palmer - Direct (Lovett)

1                   **MARGARET PALMER, PLAINTIFFS' REBUTTAL WITNESS, PREVIOUSLY SWORN**

2                   **DIRECT EXAMINATION**

3                   **BY MR. LOVETT:**

4                   Q.     Let me just start, Dr. Palmer, with a paper that was  
5     introduced here this morning that you co-authored and I think  
6     Dr. Warner raised the paper and said that he liked the research.  
7     What do you -- does the article, in your view, show that grass  
8     can replace leaf and wood in stream ecosystems?

9                   A.     Oh, absolutely not. If you actually read the article, we  
10    clipped live grass on the sides and it was for very specific  
11    reasons. So the biomass of that was compared to some literature  
12    estimates.

13                  Q.     Why won't it work here? I mean why isn't it the same?

14                  A.     Why isn't it the same? Well, because the live leaf  
15    material isn't -- the live grass material isn't directly ingested  
16    by the insects even if it's broken down by bacteria.

17                  Q.     Why did you do this work? Why did you write this paper?

18                  A.     Well, that work that -- Dr. Holly Menninger is the first  
19    author on it and we did it to try and encourage -- get data that  
20    might encourage farmers in the area to not mow the grass all the  
21    way down to the streams and I think we effectively show that  
22    there's some benefits of the grass for the stream ecosystem.

23                  Q.     Okay. Now you testified in, I think, a previous hearing  
24    before this Court about some other mine sites. You recall that,  
25    I'm sure.

Margaret Palmer - Direct (Lovett)

1 A. I do.

2 Q. And do you remember a methodology developed for those  
3 permits, I think that was later withdrawn by the Court, called  
4 the Stream Habitat Unit Methodology?

5 A. The SHU? Yeah, I remember the SHU.

6 Q. Okay. Based upon what you've heard here from Mr. Noble,  
7 Mr. Taylor, Ms. Yeager, do you think this IFAA is an improvement  
8 over the SHU?

9 MR. CROCKETT: Your Honor, I have to object. That's  
10 the first time the SHU has been mentioned. Now, sure, she can  
11 come in and say this is better than the SHU, but when did I get  
12 to cross examine anybody about the SHU or do anything that --

13 THE COURT: I don't think that's rebuttal. Sustained.

14 MR. LOVETT: Okay.

15 BY MR. LOVETT:

16 Q. Does the IFFA, after hearing all those witnesses, do you  
17 think that it does a decent job of describing stream structure?

18 A. Absolutely not.

19 Q. Why not?

20 A. There's a whole -- there's a whole series of reasons. I  
21 think, in particular, the structural attributes that relate to  
22 the habitat for the insects in the stream was not well defined.  
23 So, actually, the SHU did do a better job of that, quite frankly.

24 Q. Okay.

25 MR. CROCKETT: I just, after the fact, have to object

Margaret Palmer - Direct (Lovett)

1 to the SHU coming back in.

2 THE COURT: All right. I agree.

3 MR. LOVETT: All right. Nothing more about the SHU.

4 BY MR. LOVETT:

5 Q. In considering what you think should be done, you know,  
6 your testimony earlier about what kind of a functional analysis  
7 should be done in the absence of a -- of repeatable guidelines,  
8 do you only do -- is your work -- I think it was described  
9 earlier only as research. Do you consider yourself only a  
10 researcher or have you actually applied the methods that you  
11 testified about earlier?

12 A. Right. Well, no. Actually, I think, certainly, at least  
13 most people in the Chesapeake bay region are aware that I'm very  
14 involved in direct application issues. So I do basic research.  
15 For example, a big project where we -- the National Science  
16 Foundation funded us to look at whether or not when you  
17 manipulate boulders and cobble in ripples, if that structural  
18 change influences primary production. So that's sort of the  
19 research mode.

20 Well, probably the best example I can give of the  
21 application mode is I work with a lot of counties and local  
22 jurisdictions and Wendell County (phonetic) came to me about two  
23 years ago and said, you know, we've got a huge problem with  
24 nitrogen and sediments in the bay. Our stream restoration  
25 projects -- and these are for restoration of urban channels --

Margaret Palmer - Direct (Lovett)

1 but our stream restoration projects don't seem to be minimizing  
2 the amount of nitrogen and sediment moving to the bay.

3 So what I did is -- they said, can you give us any advice?  
4 I said, well, let me talk to your engineers and your consultants.  
5 And so we sat down and I worked with them and explained the  
6 process, the ecological process, of nitrogen removal,  
7 denitrification in streams, and the ecological process by which  
8 sediments are trapped by streams.

9 And then I said to him, what engineering tools do you have  
10 that might influence the things that drive that process, and it  
11 just so happens things like areas -- if you can create areas with  
12 long water resonance time in these areas, denitrification goes  
13 up. So the county used this -- the design that the consultant  
14 came up with based on my input.

15 They then, instead of going to the consulting firm and  
16 having them monitor it, they provided enough money to my  
17 laboratory to analyze the chemical samplings. We went out and  
18 measured, prior to the restoration going into the ground, the  
19 process of nitrogen removal. The work was done, then re-measured  
20 the process of nitrogen removal after. So this is basically  
21 saying can we actually use these processes to figure out and to  
22 design channels --

23 MR. CROCKETT: Your Honor, I have an objection. Jim  
24 Crockett. This isn't rebuttal testimony. They're bolstering --  
25 I'm not done yet. They're bolstering credentials on other work

Margaret Palmer - Direct (Lovett)

1       she's done, but none of that has anything to do with this case  
2       that she's supposed to be rebutting.

3                    MR. LOVETT: Mr. Crockett, several times during  
4       subsequent -- testimony subsequent to Dr. Palmer's testimony  
5       posed questions to her as a researcher and either we're applying  
6       that this was all done on a research level -- I was just trying  
7       to bring some practical application of the research into the  
8       courtroom based on those statements.

9                    THE COURT: Well, you've brought an example.

10                  MR. LOVETT: I'm not going to spend a lot of time on  
11       this.

12                  THE COURT: Let's move on then.

13                  BY MR. LOVETT:

14       Q. Now based on what you heard from Mr. Isabell and others  
15       here, did Fola follow an approach similar to the one you've just  
16       described?

17       A. No. Absolutely not. If you're trying something that you  
18       are not sure how it's going to work, you come up with proposing a  
19       link between the design, the structure and the functions you  
20       want. You get pre-restoration or, in this case, creation data on  
21       those functions and then post-data.

22       Q. Okay. Well, given that, is the plan that they came up  
23       with and that you heard described here likely to create a  
24       well-functioning treatment stream?

25       A. I think not, unfortunately.

Margaret Palmer - Direct (Lovett)

1 Q. Why?

2 A. Well, I think there's several really big issues. One,  
3 while all of us, I think, have agreed we're not sure what the  
4 slope is going to be, we think it's going to be lower. We think  
5 the stream channel is going to run through a wetland. That means  
6 it's going to have a totally different food base.

7 Furthermore, because it is in an area without existing  
8 trees, the primary energy source is going to be sunlight and  
9 photosynthesis, which is totally different from these headwater  
10 closed canopy streams.

11 Q. So after hearing all the testimony, is it your scientific  
12 opinion that the Corps -- either the Corps or the applicants  
13 know the functions of the streams and stream ecosystem that will  
14 be lost at Ike Fork?

15 A. That's correct.

16 Q. And it's also your opinion that the restoration site  
17 won't mimic functions of Appalachian headwater streams or  
18 unlikely to mimic?

19 A. I think it is quite unlikely.

20 Q. And that is saying a lot if you're a scientist, right? I  
21 mean scientists don't normally say "impossible"?

22 A. I would be shocked if it did, yeah.

23 Q. All right. So the harm then, what is the -- what is the  
24 harm? I guess this is a basic question, but I just want to put  
25 it in the record. What's the harm to Ike Fork from burying it?

Margaret Palmer - Cross (Crockett)

A. Well, the streams will be completely lost and all the functions associated with those, including regulating temperatures, you know, all sorts of things supported in the stream, fauna. A whole array of functions will be lost permanently. They they will be gone.

Q. And as soon as they're buried, there is no way to find out what their functions were?

A. No. No. Not once they're buried.

MR. LOVETT: Thank you.

THE COURT: All right. Cross.

MS. MORRIS: Nothing here, Your Honor.

THE COURT: All right. Mr. Crockett?

## CROSS EXAMINATION

BY MR. CROCKETT:

Q. Hi, Dr. Palmer.

A. Hello.

Q. Back before I objected, remember you were talking about a program you worked on for a county, right?

A. Yes.

Q. If I heard it right.

A. Uh-huh.

Q. I don't hear well. I'm sorry.

A. That's okay.

Q. That was a Georgia county, right?

A. It was.

Margaret Palmer - Cross (Crockett)

1 Q. And that's down in the tidewater area of Maryland?

2 A. Absolutely.

3 Q. And you had some criticism of Mr. Isabell's work here  
4 about how he's gone about creating a stream up here?

5 A. Well, I don't think I outlined criticism of it. I said  
6 that they were not following the process I would recommend.

7 Q. You didn't think much of his process. I thought the  
8 point was that you thought that you followed a better process  
9 than he followed, and maybe I misunderstood your point.

10 A. I do think I followed a better process.

11 Q. The last time you built a stream in Appalachia like this,  
12 how did you go about that?

13 A. I have not built a stream in Appalachia.

14 MR. CROCKETT: That's all I've got.

15 THE COURT: All right. Any other questions?

16 All right, Doctor, you may step down.

17 Plaintiff rests again?

18 MR. LOVETT: We rest again.

19 THE COURT: All right. Does the Corps have any  
20 additional evidence?

21 MS. MORRIS: We do not, Your Honor.

22 MR. CROCKETT: No. We're done, Judge.

23 THE COURT: All right. So all the parties have  
24 submitted all the evidence.

25 Mr. Castle, do you want to move the exhibits that you

1 tendered and identified?

2 MR. CASTLE: Yes, Your Honor.

3 THE COURT: Any objection to their admission?

4 MR. LOVETT: No, Your Honor.

5 THE COURT: They're all admitted.

6 MR. LOVETT: I have the same issue. I think I failed  
7 to move the admission of --

8 MR. CROCKETT: Can we just let them all in if they used  
9 them?

10 MR. LOVETT: Let's do it.

11 THE COURT: Consistent then with the agreement among  
12 counsel, any exhibit that has been identified and marked will be  
13 admitted into evidence and any objections are hereby denied.

14 All right. We're going to go ahead and take a break. What  
15 I would like to do is come back at 1:00 and hear closing  
16 statements on all of this.

17 I want to remind everyone this is a preliminary injunction  
18 hearing. There are factors that the Court must evaluate and so I  
19 would like you to address those in all of your arguments in the  
20 context of these factors so that the Court can fully evaluate it.

21 Mr. Crockett?

22 MR. CROCKETT: Do we need to clear the room for the  
23 next -- how do we do that? I would just try to make some room --  
24 push everything to the front end of the desk so that counsel in  
25 the next matter can at least have a little bit of room.

1 THE COURT: With that, we'll reconvene at 1:00 p.m.  
2 I'll give each side roughly about 20 minutes.

3 MR. LOVETT: I won't need that long, Your Honor.

4 MS. TURNER: I was going to suggest ten minutes.

5 THE COURT: Ten minutes?

6 MS. TURNER: Ten each and put it on the clock.

7 THE COURT: Mr. Crockett, ten minutes?

8 MR. CROCKETT: That's fine.

9 (Recess taken.)

10 THE COURT: All right. Are we ready to proceed?

11 Go ahead, Mr. Lovett.

12 MR. LOVETT: Thank you, Your Honor. I will address the  
13 four Blackwelder factors. First of all, harm, there's been  
14 procedural harm here, as Mr. Hecker argued on Wednesday. The  
15 Corps filed and circulated the EID and the CMP prior to the  
16 issuance of the permit and that harm is that the plaintiffs did  
17 not have the opportunity to participate in the permitting process  
18 as Army Corps and NEPA regulations require.

19 THE COURT: You know, I looked at the comments filed by  
20 the groups, as well as the Corps' response. What is it that was  
21 missing from this opportunity? What was it you didn't get to  
22 comment on before?

23 MR. LOVETT: We did not see the EID, the CMP, the  
24 supplemental CMP or the decision document.

25 THE COURT: Well, all of those things, of course,

1 address mitigation.

2 MR. LOVETT: Well, I think the EID and decision  
3 document also addressed the environmental impacts and the project  
4 itself and, of course, we think that mitigation is part of the  
5 project because it's what's used to offset the damages.

6 And don't forget one other thing, Your Honor, if you don't  
7 mind. The E. A., the environmental assessment, certainly  
8 considers the mitigation project and NEPA regulations, I think,  
9 require that we have an opportunity to participate in the E. A.  
10 Process.

11 THE COURT: Well, I understand you didn't have the  
12 particular mitigation plan, obviously, that had been filed  
13 apparently with the application, but in the comments you  
14 certainly addressed, as I recall, all of the theoretical problems  
15 that you've expressed here and elsewhere with the approach the  
16 Corps and the applicants take in mitigation. So why isn't that  
17 enough?

18 MR. LOVETT: We did not have the IFFA. It did not  
19 exist at the time. The Corps issued its IFFA to issue its  
20 permit. We never saw or had an opportunity.

21 And I guess the Corps put the IFFA out for comment at some  
22 point. We were unaware of it, honestly, and maybe we should have  
23 been aware of it. We weren't aware of it, but we did not have  
24 the opportunity, in any event, to address the IFFA in the context  
25 of this case or this permit. We were denied that opportunity and

1       we could not, therefore, meaningfully participate in the E. A.  
2       process as NEPA requires.

3           I mean we did submit fairly general comments. I think the  
4       Corps' response in some ways, and that's what the Corps said in  
5       its response in our comments. I don't think that's an unfair  
6       response to us because we didn't have data about this particular  
7       mine site. We just had a public notice, which really says very  
8       little about the project. It tells us how many linear feet are  
9       going to be filled and that kind of thing.

10          So we don't know what's really going on. So we're  
11       speculating. Everything in those comments are speculative. We  
12       can't know if they're accurate or not because we don't have the  
13       opportunity to see the documents that underlie them.

14          There went all my time.

15          Environmental harm here is clearly significant. Even the  
16       project itself at the eleven valleys, Fola has asked for three  
17       more valleys, as I understand it, two full and one large, two  
18       small and one large one, but that's significant to environmental  
19       harm.

20          We also lose the ability to understand the functions of the  
21       streams that will be buried forever.

22          Lastly, downstream pollution will result from this. Lilly  
23       Fork is already high in conductivity. Laurel Fork, high in  
24       conductivity. Sulfates, Dr. Bernhardt testified that the sulfate  
25       problem would become worse because of this. That wasn't

1 contradicted anywhere. Really, Dr. Bernhardt showed that there  
2 -- after this project there would be two watersheds impaired  
3 instead of just one.

4 Currently, we -- you know, the Laurel Fork watershed is  
5 impaired. This will lead to the impairment of both of those  
6 watersheds. That harm is imminent and it's irreparable and this  
7 Court ruled under the Callisto case that the harm to Fola, on the  
8 other hand, is not -- is not irreparable because economic harm in  
9 itself is not irreparable in the way that the destruction of the  
10 environment is and neither is the harm imminent.

11 Even if the Court issues the injunction, there will be no  
12 layoffs at Fola for sometime and production will be until June of  
13 2009, I think was the testimony, and production will go down  
14 marginally during that time, but that's harm that can be, you  
15 know, made up later, unlike the harm to the environment.

16 The merits, and I'll just go through them quickly because  
17 the Court just heard them and there's no need to be rehashing  
18 testimony that you already heard, but, of course, there was the  
19 procedural harm. I mean we think that we're right on the merits  
20 on procedure.

21 The IFFA, well, there's no connection between structure and  
22 function there. The 404(b)(1) guidelines require that the Corps  
23 assess structure and function. In addition to that, it requires  
24 that the Corps not issue a permit that will lead to significant  
25 degradation of waters in the United States. The Corps has

1 provided no rational explanation for that.

2 I'll let the testimony stand on its own except to say one  
3 thing, another thing, that the mitigation is completely dependent  
4 on IFFA worksheets. So the IFFA process is all there is to  
5 determine the mitigation. There's nothing else. It's just the  
6 IFFA worksheets.

7 Mr. Noble basically, who developed the IFFA alone, had no  
8 training, consulted no papers on stream ecology, consulted with  
9 no experts on stream ecology, didn't read the literature on  
10 stream ecology, measured no functions, correlated no functions, I  
11 mean through measurement to structure, and the Corps itself has  
12 not met its functions or required the applicant to.

13 The stream won't work. The restoration project won't work.  
14 It's going to be wetlands. That's not a kind of ecosystem that  
15 we have in high gradient streams. Temperature is going to be  
16 hotter in the summer, cooler in the winter. Sediment load will  
17 be wrong. Channel size, we don't know if the channel size is  
18 right. There's a whole list of things.

19 All of that said, however, in the public interest factor, it  
20 forces me to concede here the miners would be hurt by the  
21 issuance of the injunction that we're asking for and that Clay  
22 County itself may be hurt and I also think that the Fourth  
23 Circuit will rule here soon and that that will give the Court a  
24 little more guidance, perhaps, on how to proceed in the future.  
25 So we're here -- what we're here to do is ask the Court to issue

1 the injunction today, declaring the plaintiffs are likely to  
2 succeed on the merits, on the IFFA, and on the procedural issues,  
3 and then to stay that injunction, only in relation to two small  
4 valley fills that Fola asks for that, as I understand it, will  
5 allow Fola to continue operations through the end of 2009.

6 Can I say one other thing, Your Honor? I think it is  
7 important that the Court address those issues because this isn't  
8 a unique case. It is unique, I think, in the sense that Clay  
9 County is in a different position and so the public interest  
10 factors may be different from public factors in other cases, but  
11 I think the merits issues and the harm issues are identical and  
12 it is important for the Court to let the Corps know that this  
13 IFFA is not likely to succeed on the merits in the future cases  
14 or in this case.

15 THE COURT: All right.

16 MR. MORRIS: Thank you, Your Honor, for your patience  
17 and for your attention for the last last three days. I do intend  
18 to address the element of the preliminary injunction standard  
19 that focuses on the likelihood of success on the merits and that  
20 is the Corps' responsibility. That is our interest here in  
21 upholding the regulatory process. I'm sure that counsel for the  
22 coal company intervenors will talk about the harm issue and how  
23 the balance should properly be made.

24 There were three issues that I wanted to address with  
25 respect to the merits and those are the three issues that have

1       been talked about by the plaintiffs and been filed in briefs to  
2       the Court. First is the challenge to the public notice. I note,  
3       and I know the Court understands this now from the filings, that  
4       the public notice requirements are not something that the Corps  
5       has a great deal of discretion about. They are regulatory. They  
6       are promulgated regulations that tell the Corps when it must  
7       issue public notice, within 15 days after the application is  
8       complete.

9                   THE COURT: But the Corps decides when it's complete?

10                  MS. MORRIS: Well, the regulations say what constitutes  
11        a complete application and when that information is in and the  
12        application is complete, the Corps then must, within 15 days, say  
13        that is public notice and accept comment on that. That is, of  
14        course, long before the Compensatory Mitigation Plan is  
15        documented, the environmental document. It is an interim process  
16        that goes on, as Your Honor is aware of, in many months in  
17        collecting the data to work on these large permitted projects and  
18        the Corps is required to get the public notice out earlier. They  
19        did what they had to do under the regulations where they had very  
20        limited discretion.

21                  Now Mr. Lovett doesn't like that process and if he believes  
22        the process is unfair, his remedy, I submit, is not to come to  
23        this Court and seek relief from Your Honor. The remedy is to go  
24        seek changes in those regulations that mandate how the Corps is  
25        to behave and, in fact, the regulations were recently amended.

1                   The amendments, of course, are not applicable to this  
2 permit, but the amendments recently added do require now summary  
3 or statement of the mitigation plan is to be included in the  
4 application and what that means, back to your earlier question,  
5 is that no longer will the application be deemed complete and no  
6 longer, therefore, will the 15-day period start to run until the  
7 statement of mitigation proposal is available. That certainly is  
8 not going to be the full mitigation plan, but at least the public  
9 notice in the future will provide a statement about what will be  
10 required for mitigation and that may go a long way towards  
11 addressing the concerns of Mr. Lovett.

12                  To the extent he has more concerns that he addressed in his  
13 comments this afternoon about wanting to see the environmental  
14 information document and the complete Compensatory Mitigation  
15 Plan and the environmental assessment, those are documents that  
16 are long, voluminous, and come up late in the process. It sounds  
17 to me that what he is asking for is to really see a draft of the  
18 permit document, a draft of what the final decision will be, so  
19 that he can then have another opportunity to comment on it.

20                  Now that is a process that is employed in formal rule  
21 making. It is not the process that is applicable to a permit  
22 process and, in fact, would slow things down in a way that would  
23 not be tolerable from a regulatory standpoint. So I -- my point  
24 on this, Your Honor is that the Corps is doing what it's required  
25 to do both under NEPA and under the CWA regulations with respect

1 to the notice on these issues.

2 THE COURT: When you say "the Corps," I guess, is the  
3 following relatively strict set of regulations that define the  
4 notice, the public comment period and so forth, but clearly in  
5 the regulation, and I don't want to take a whole lot of time here  
6 going back and looking it up, but, clearly, the Corps has some  
7 discretion to provide a supplemental notice.

8 And, further, in this case, we know that once the CMP was  
9 filed, and I assume maybe even the supplemental, although I'm not  
10 sure, at least with the CMP, the Corps distributed that to a  
11 number of agencies. I mean what could be simpler than sending it  
12 also to those who have filed comments in the case? I mean how  
13 could that -- that seems so simple and obvious to me, knowing how  
14 important the CMP is.

15 I mean you've been here all the days I have and you know  
16 that that's really what's at heart in all these disputes, the  
17 adequacy of the Comprehensive Mitigation Plan and any supplements  
18 or anything like that. So I mean what's -- why wouldn't the  
19 Corps, just as a matter of routine, send that out to people who  
20 filed comments on the design of mitigation when you're sending it  
21 to all these other agencies for comment?

22 MR. MORRIS: First, let me just clarify the facts a  
23 little bit.

24 THE COURT: Okay.

25 MR. MORRIS: There is a Compensatory Mitigation Plan.

1 There are also documents the plaintiffs are interested in, I  
2 believe the environmental information document and some of the  
3 environmental assessment work. These constitute the bulk of the  
4 many volumes that Your Honor has seen when we put together the  
5 administrative record, the majority of that and, particularly,  
6 the large complicated parts are this end part of the process with  
7 mitigation work.

8 THE COURT: Well, I understand that much of this isn't  
9 done until the end and I realize that at some point the Corps has  
10 assembled all the information ostensibly giving anybody a chance  
11 to make a comment and then has to decide it and it shouldn't have  
12 to be circulating, at least not under the current scheme, drafts  
13 or anything like that, but we're really talking about time in the  
14 process that's a little more discrete than that and specific as  
15 to the Comprehensive Mitigation Plan.

16 MS. MORRIS: And the information, even though it is in  
17 huge volumes, and so I think, as a practical matter, it is not  
18 easy to send that out to anybody who is interested in it, but it  
19 is all available. It is there in public record. When it's in  
20 the Corps' file it is public record and plaintiffs can go look at  
21 it anytime they want and, indeed, they do often get copies of it  
22 when they do their FOIA requests that come in on a regular basis.  
23 So it is not that the information is secret, but there is a lot  
24 of it and any effort to try to disseminate that more broadly than  
25 they're doing now, I mean --

1 THE COURT: Well, then why doesn't the Corps just post  
2 a public notice or something to that effect or send a letter to  
3 the agencies or the people who have commented, who have already  
4 attempted to have public input, and why don't you just send a  
5 letter saying the Comprehensive Mitigation Plan has been filed  
6 and it's available for inspection?

7 MS. MORRIS: That might be reasonable. It is not  
8 something that's been requested before, but certainly is  
9 something that would be more practicable to put something on the  
10 website that says it's here than to send it out to somebody -- or  
11 for people to look at.

12 THE COURT: Well, to me, these are very sensible and  
13 practical alternatives to that which you adopted here, which is  
14 -- I understand wasn't secret, but at the same time, when the  
15 Corps goes to the trouble of making it available to agencies, the  
16 very same regulations that require you to facilitate public  
17 participation.

18 So I mean, to me, it's almost like you've got a list of  
19 those who are supposed to be involved in the process and then,  
20 for some reason, you've differentiated the Corps' notification  
21 from agencies and from the public and I don't understand why in  
22 the context of these regulations the Corps would do that,  
23 frankly.

24 MS. MORRIS: That's -- the regulations require that  
25 these resource agencies get notice so that they can provide the

1       input from their area of expertise and they don't require that  
2       everybody in the entire public who submitted comments get that  
3       notice. Now we're looking at, Your Honor, in one case, and if we  
4       were talking about this one case, it would make all the sense in  
5       the world to provide OVEC counsel with everything that comes in  
6       in these cases, but the regulations that apply go to all the  
7       permitting processes, to hundreds and to thousands, and some that  
8       are very, very small, some that are larger, and the degree of  
9       public involvement and of interest is, of course, all over the  
10      lot.

11                   THE COURT: Well, I can't say that I completely agree  
12       in that here we know that these are major projects by definition.  
13       The Corps, the applicants, spend a fortune, and so does the  
14       Corps, in trying to do the appropriate analysis and, in this  
15       case, we know from history how important the Comprehensive  
16       Mitigation Plan is to this whole process. So I know the Corps is  
17       constantly receiving information and I don't think anybody  
18       suggests that just because you got a letter there has to be  
19       notice to everybody involved or who might have an interest in it.

20                   But here, you know, I think we have to keep focus. We're  
21       talking about, ultimately, probably the most important document  
22       that the applicant has to file and that the Corps will rely upon  
23       in deciding whether to do an environmental assessment or a  
24       full-blown EIS or to say no to a project and so, yeah, I realize  
25       that these same regulations apply to anything and everything

1 received, but this seems to be such -- such at the core of what  
2 the Corps is doing that it just puzzles me that it's handled this  
3 way.

4 MS. MORRIS: I think what is suggested, Your Honor, or  
5 we'll take from your suggestion, is there may be room for some  
6 discussion among the parties that may find resolution so that at  
7 least the parties interested in this case can become aware when  
8 such documents are filed and avail themselves of the opportunity,  
9 perhaps, to come look at them, but I'm certainly very hesitant to  
10 suggest any kind of formalized procedure and I certainly would  
11 encourage the Court not to use this case to establish some type  
12 of formalized procedure that would be inconsistent with the  
13 regulations that the Corps is obviously bound by.

14 THE COURT: Well, certainly, at this stage we're only  
15 talking about preliminary injunctive relief.

16 MS. MORRIS: And, as Mr. Lovett said, I have now spent  
17 more time than I meant to.

18 THE COURT: That was my fault. So move on.

19 MS. MORRIS: I do want to talk about what has been a  
20 key issue here in this preliminary injunction in regard to the  
21 merits and the subject of most testimony and that is the  
22 projected assessment process that the Corps has used. Now it has  
23 been exactly a year and a half since Your Honor has sat not at  
24 that bench, but the bench upstairs, and sent a very clear message  
25 to the Corps that more needed to be done with regards to

1 assessing the streams that were going to be affected by these  
2 valley fill projects and I want the Court to know that the Corps  
3 listened and the Corps heard well and immediately thereafter  
4 embarked upon a process to come up with the HGM Hydrogeomorphic  
5 Approach that would, indeed, provide a scientifically valid  
6 methodology for measuring or predicting the functions of these  
7 streams.

8 Your Honor has heard a great deal about the HGM Approach.  
9 The final guidebooks -- the formal guidebooks that are prepared  
10 in this approach are the ones Dr. Brinson spoke so highly of and,  
11 in fact, takes credit for and it didn't start a year and a half  
12 ago and the Corps has already been working for them and has  
13 almost twenty in place, not surprisingly, and starting to  
14 implement the approach in the areas where there are more projects  
15 and it will have the most use, but the area for the high gradient  
16 streams of West Virginia and Kentucky has moved to the top and is  
17 being worked on. They've been working on it since Your Honor's  
18 ruling.

19 And probably, as you heard the testimony, within about a  
20 year, hopefully, of having the operative draft out in the field  
21 working to see how that goes. They're listening and we want the  
22 Court to understand that.

23 In the meantime, these things do take awhile to produce and  
24 the Corps was looking for something that it could use in the  
25 interim that would provide some reliable indication of the

1       functions that it could use for its permitting process until it  
2       has the HGM guide book. The same persons that employ and work on  
3       these guide books -- in fact, Chris Noble is the one who has the  
4       primary responsibility for other guide books in different areas,  
5       is the one that the Corps asked to put together an interim  
6       approach.

7               Now, Your Honor, it is not perfect. It has many limitations  
8       and Dr. Mauney and Mr. Noble were very candid with the Court  
9       about the limitation of the interim approach, but it is an  
10       interim approach. It takes the same methodology that is used for  
11       the HGM and it, in a compressed fashion, gathers some data which  
12       is not unique to this area and is certainly not the detailed data  
13       that will be employed in coming up with a final HGM guide book,  
14       but, nevertheless, as Mr. Noble says, provides sufficient  
15       regulation that is reliable enough for temporary use and for  
16       predicting and estimating functions.

17               THE COURT: Well, if the question is whether there is  
18       evidence here to support the Corps' conclusion that there is a  
19       scientific basis underpinning the IFFA'S use of these structural  
20       measurements as it defines it and ranks them to indicate  
21       function, where is that? Where am I going to find that in the  
22       record?

23               MS. MORRIS: I think there's two parts of the question  
24       or two pieces that need to be answered.

25               THE COURT: Okay.

1                   MS. MORRIS: One is whether there is a scientific basis  
2 to estimate and predict function. I think the record is very  
3 clear on that. That's what Dr. Brinson testified about. The  
4 structural methodology can, indeed, predict the function of the  
5 stream in a very reliable way.

6                   THE COURT: Well, you said "stream" and I'm not sure I  
7 heard him say that, to be quite honest with you. Certainly, that  
8 appears to be the consensus with Brinson and others with regards  
9 to wetlands and that's the foundation of those guides, but, you  
10 know, I'm not sure I heard that with regard to high gradient  
11 streams.

12                  MS. MORRIS: There is between perennial streams and  
13 then we heard talk and, in fact, there was the article introduced  
14 about the headwater and ephemeral streams, first and second order  
15 streams and high gradient is in between those areas. Certainly,  
16 those folks at the ERDC organization who are the scientists and  
17 the Ph.D.'s and the qualified persons believe that this can be  
18 done and can be reliably done, not that the IFFA does it, the  
19 interim approach doesn't accomplish that objective, but they have  
20 confidence that the final guide book will, in fact, and we'll  
21 have to wait and see.

22                  That's going to be done, we hope, within a year and I hope  
23 that many -- and perhaps Dr. Brinson will have the opportunity to  
24 weigh in and look at that and there is confidence that can be  
25 done with the correct data gathering.

1                   The concern for the preliminary injunction, I think, and for  
2 today is whether we can rely upon the Interim Functional  
3 Assessment for these purposes and I think the testimony does show  
4 that although not perfect, and although it does have regulations  
5 and it is sufficient for regulatory judgment based on not  
6 gathering data to high gradient streams in West Virginia, but to  
7 data analogous and then extrapolated to apply here to the various  
8 variables. It is not going to be on exact, but Chris Noble  
9 certainly thinks it is sufficient for use by the district in the  
10 interim and it is for a short-term period of time.

11                   THE COURT: Well, I don't question Mr. Noble's and  
12 others' sincerity, but I guess I still am not certain that I have  
13 heard evidence that establishes a scientific foundation for that  
14 confidence. I have immense respect for Mr. Noble and, you know,  
15 all these people. It's a very difficult work and I respect the  
16 Corps' effort to try to improve on the situation and I realize  
17 that, certainly, because we have a pending appeal before the  
18 Fourth Circuit, nobody really knows exactly where to go next  
19 because we don't know what the next -- what the Appeals Court is  
20 going to do with this.

21                   I appreciate the process that you and your witnesses  
22 described about trying to develop a real model to be used. I'm  
23 impressed with the way the wetlands guides were prepared, the  
24 analysis, the reliance on scientific principle to reach the  
25 judgments in there and the degree to which it provides tangible

1 tools for these folks out in the field, for the applicants, for  
2 the consultants, and for the Corps, the regulators, to use to  
3 evaluate these things, but that still leaves me with this problem  
4 and that is that in the meantime, we've got the IFFA and if it's  
5 just -- if my decision ultimately is just based on the sincerity  
6 of the Corps' belief that it's an adequate tool, it would be an  
7 easy decision.

8 I don't doubt the Corps' sincerity, but I think under the  
9 statute what I've got to do is find whether there is a scientific  
10 basis for it and, you know, to put it bluntly, I'm still troubled  
11 by that. I think it's an improvement. I'm glad we didn't have  
12 to listen to discussion about the SHU until the very last day.  
13 We all got our fill of the SHU issue before, but, you know -- and  
14 I think it's progress, but when I sit down and look at that list,  
15 frankly, of the variables and the way they're measured, it is a  
16 more sophisticated approach. I'll grant you that.

17 I don't know that I can see from the evidence here or from  
18 anything in the document itself that it supplies that critical  
19 ingredient of a scientific basis to correlate those variables  
20 with function and it does seem to use structure -- well,  
21 everybody agrees its structural measurements, perhaps a little  
22 more detailed and sophisticated, and I hope maybe a little more  
23 replicable by different inspectors, but, yet, at the end of the  
24 day, it's still a question of whether it's scientifically valid.

25 MS. MORRIS: But let me leave that point with one final

1 comment.

2 THE COURT: Okay.

3 MS. MORRIS: And that is that I do think that the  
4 evidence shows that the methodology is scientifically  
5 established; that is the use of the structural measurements and  
6 variables to predict functions of the streams.

7 What is lacking here, what is admittedly lacking here, is  
8 the scientific data that is specific to the high gradient reaches  
9 in West Virginia. We do not have the actual data for here, but  
10 the methodology that Dr. Brinson came up with and that has been  
11 applied is a scientifically accepted methodology. It's just the  
12 matter of finding the right data to tweak it down to our  
13 particular circumstances.

14 The final thing that I wanted to comment on, and it actually  
15 might follow on to the lack of certainty with respect to the  
16 functional assessment protocol and how well it works, is the  
17 mitigation approach. In this case, there's been some testimony,  
18 I think that was mostly yesterday afternoon and this morning,  
19 about the mitigation that this coal company intends to use in  
20 order to replace the functions that are lost by the impacted  
21 streams. Nobody knows.

22 Your Honor, I'll be the first one to stand here and tell you  
23 that no one knows with certainty that that mitigation is going to  
24 work, that there are going to be newly created streams that have  
25 the same functions. The Corps doesn't know that. Even Dr.

1 Palmer and Dr. Bernhardt could not say with certainty that it  
2 will fail. We don't know that it's going to work. What -- and,  
3 by the way, certainty is not required in this.

4 THE COURT: I agree.

5 MS. MORRIS: The Fourth Circuit says you can't tell in  
6 the beginning. What we do is make your best estimate based upon  
7 the data that you have available. In this case, the data  
8 available comes from the interim assessment and at later dates it  
9 comes from more complete and robust data, but based upon whatever  
10 that is available. Assessment will be made about what impacts  
11 there will be to the impacts and functions of the stream and how  
12 those impacts might be replaced through mitigation, either  
13 through mitigation or creation of other opportunities.

14 We don't know if it is going to work, but we will, Your  
15 Honor, before the mitigation is done. It takes time. The  
16 monitoring period in the permit is ten years, but during that  
17 ten-year period there is ongoing adaptive management where the  
18 progress is monitored and looked at, and if it's not working the  
19 way it was intended to, it can be changed based on the data  
20 that's been collected on that mitigation project to make it more  
21 effective and more successful.

22 If, at the end of the ten-year period, notwithstanding the  
23 adaptive management processes, if it still hasn't reached the  
24 performance standards -- performance standards are based on the  
25 measure of the stream functions impacted. If it has not yet

1       reached the measure of restoring that same score of functions,  
2       then the mitigation will be enlarged. Either the mitigation  
3       period will be enlarged or a different mitigation might be  
4       required, but the company is not going to be released from their  
5       obligations until the mitigation reaches the same level as the  
6       structure and functions of the streams that have been impacted.  
7       So we don't have the certainty now.

8           I don't think Your Honor is being asked to find that it is  
9       certainly going to work, but I ask you to consider the fact that  
10       it will work before it's done. That's what the special  
11       conditions of the permit require. So there will be a gap the  
12       same way that we validate basically the HGM Approach by going out  
13       and saying, yes, it is replicated and, yes, we can get the same  
14       information. You may not know in advance it's going to work, but  
15       there's a way to go back and test and see if it did work.

16           THE COURT: And I don't want to have you take up all of  
17       your time. I want to move on to Fola, too, but, you know, I  
18       think the crux of the issue there is does the Corps have adequate  
19       information to fairly and reasonably predict that the stream  
20       creation is going to work?

21           If you had a lot of other examples or some other -- some  
22       number of clear examples of it working somewhere, you know, I  
23       think I would readily agree with you that the Corps can approve  
24       these on that basis and build in monitoring to try to ensure  
25       compliance and that would probably meet the statute and

1 regulations.

2 The dilemma here is that as we look around, and, you know, I  
3 know -- no offense to Mr. Crockett, but when he first got up and  
4 said he was going to tell us about Fola having the great  
5 experience with stream creation, and I don't want to denigrate  
6 what they've done. I think they've done some wonderful work  
7 there, but I didn't really hear what I thought I might hear,  
8 frankly.

9 We still, even in this evidence over three days, haven't  
10 seen clear evidence of actually successfully created streams  
11 under these circumstances. So they've made some progress. I  
12 understand what's gone on at their other sites and it looks like  
13 -- I was impressed with the way it appears in these videos and so  
14 forth, but, you know, it still looks to me like and sounds to me  
15 like, at best, this concept of stream creation is in its infancy.

16 MS. MORRIS: I think that's a perfectly good word and  
17 my final comment on that point is that we are at the beginning of  
18 an area of science that is new and evolving and an important one  
19 and it's getting a lot of resources poured into it, both from the  
20 field and in research to look at these issues, but we are in the  
21 infancy. We don't yet have the shoulders to stand on. We're  
22 starting from the ground, but I think any one of those Ph.D.  
23 doctors that have taken that stand and talked to you, Your Honor,  
24 is going to say and would agree that that's how science evolves.  
25 That's how we get to perfection, is by starting somewhere with

1 what we have and building on it and we're starting and we're  
2 building.

3 THE COURT: Well, that begs the question then. How is  
4 the Corps using that to justify permits that are permanent in  
5 their impact?

6 MS. MORRIS: They're using it to just -- because of the  
7 mitigation requirements, that say we think -- we don't know for  
8 sure. We think it works. We hope it works, but if it doesn't,  
9 we require more. We're going to keep requiring more because  
10 we're not going to know next week or next month if what you're  
11 doing out there in the field now is, in fact, going to work, but  
12 we're going to make sure that it does one way or the other before  
13 we release you. That's what we do.

14 THE COURT: Okay.

15 MS. MORRIS: So in closing, Your Honor, I want to  
16 encourage the Court not to rush hastily into a decision on the  
17 merits in this case. There is a lot that's going to happen here  
18 in the next year. We'll have, as you mentioned, guidance from  
19 the Fourth Circuit on some of these issues and we'll very likely  
20 have within the next year an HGM model guide book with the full  
21 data and scientific support that would provide, I think, a much  
22 greater comfort to the concerns Your Honor has raised and that,  
23 in the meantime, I think that what the Court really ought to look  
24 at in terms of maintaining the status quo is to allow the  
25 regulatory process to go forward, doing the best that they can

1 with what we have at this time and to allow the coal companies to  
2 continue their work and I think on that point, I'll turn it over  
3 to the coal company to talk about the harm issue.

4 THE COURT: All right. Mr. Crockett?

5 MR. CROCKETT: Well, I didn't mean to oversell. The --  
6 they are good at stream creation, Judge. I mean the problem here  
7 is I think we -- I would be remiss if I didn't say a few things  
8 about Fola here. I mean Fola has demonstrated to be completely  
9 committed to this process. They're the ones who have played by  
10 the rules at every turn. We wouldn't be in this courtroom today  
11 if we'd buried the streams, just gone out, violated the Smackra  
12 permits and we wouldn't be here, but they don't do that sort of  
13 thing.

14 This stream creation on the -- on the reclaimed valley fills  
15 is a science in its infancy, but that's the granddaddy sitting  
16 right over there (indicating). Nobody has done more than he has.  
17 That isn't just filling up a drainage ditch with some grass and  
18 some rocks. He's the guy who does it. He's the experiment. How  
19 are you ever going to know if someone doesn't go out in the field  
20 and give it a shot?

21 THE COURT: I have no quarrel with that. I assume  
22 you're referring to Mr. Isabell?

23 MR. CROCKETT: Yes.

24 THE COURT: I don't have any quarrel with that at all,  
25 Mr. Crockett. Here's the problem. You know, that looks like an

1 effort well underway. I accept his testimony that he's created a  
2 wetlands area that's fed partially by these perched aquifers that  
3 have been identified. It's got a surface flow that's going into  
4 it. They've created a wetlands area, a pond. I mean, you know,  
5 I realize that you can't just go on what laymen see, but it  
6 looked like it was a viable wetland or pond area, but everybody  
7 agrees, including Mr. Isabell, that's just a step in a process.

8 MR. CROCKETT: Absolutely.

9 THE COURT: So here is the same question to you that I  
10 posed to the Corps. Admitting that this is still in its infancy  
11 and conceding that there is progress being made, how is it that  
12 we should be making permanent decisions in these permits that  
13 depend upon the viability of this type of effort when it's still  
14 in its infant stage?

15 MR. CROCKETT: I think I have an answer for you, Judge.

16 THE COURT: Good.

17 MR. CROCKETT: I think we do exactly what we've been  
18 doing and here's why. The United States Supreme Court told us  
19 that when we are dealing within an area of special expertise that  
20 the frontiers of science, when examining this kind of scientific  
21 determination, and he's talking about making predictions --  
22 sorry, started a little late, making predictions about when it's  
23 going to work, that this kind of scientific determination, as  
24 opposed to simple findings of fact, a reviewing court and me,  
25 too, must be most deferential to these folks right here because

1                   that's the people that the United States Congress turned it over  
2                   to.

3                   THE COURT:  Here's the problem I've got with your  
4                   statement.  You know, I don't dispute anything you've said, but  
5                   the fact is that, generally speaking, at least, and, certainly, I  
6                   think it applies as a principle here, before scientists decide  
7                   whether something works or not, they experiment, and here it  
8                   sounds to me like we're experimenting after we say -- after we  
9                   decide that it's okay to do it.  I mean here we're granting  
10                  permits and saying even though we don't have the laboratory  
11                  experience here to be sure that this works, we believe we're  
12                  going to go ahead.

13                  MR. CROCKETT:  Well, I don't -- I think you're selling  
14                  everything a little short, though, Judge, with all due respect.  
15                  I'm not standing up here and defending the IFFA.  That's their  
16                  work.  I mean we didn't make it.  We had to go out and do it.  I  
17                  mean we did everything -- that's why I'm not going to comment on  
18                  notice.  We did everything we were supposed to do.

19                  THE COURT:  Right.

20                  MR. CROCKETT:  We did the IFFA.  It's not the only  
21                  thing we did.  I mean it -- there were, oh, my goodness, I have a  
22                  list here.  The rapid bioassessment, the Emap, the -- you know,  
23                  WVSCI, there's the Rosgen analysis.  This record is thick for a  
24                  reason.  There's more in it than just that.

25                  THE COURT:  Sure.

1                   MR. CROCKETT: And those are the things that we were  
2 asked to give. It is incumbent upon all of us and, granted,  
3 we're going to learn from the Fourth Circuit what the real -- I  
4 mean not the real, but the answer is. Sorry. Oops. The next  
5 answer -- oh, yes.

6                   THE COURT: Be careful. I'm going to appoint you to  
7 defend some criminal cases if you're not careful.

8                   MR. CROCKETT: I don't have anything more, Judge.  
9 The sleep deprivation is not all it's cracked up to be. I lost  
10 my train of thought.

11                  THE COURT: Well, you talked about all of these things  
12 that are in here and I agree those are -- there were a lot of  
13 assessments done and I agree it's not just the IFFA, but, again,  
14 all of that, it seems to me, kind of begs that fundamental  
15 question and that is, you've collected all this data, but where  
16 is the experience that the testing that tells us that stream  
17 creation works before we decide to allow it rather than allowing  
18 it and just believing it will work?

19                  MR. CROCKETT: Well, and that's where I think -- I  
20 mean, first off, the regulation goes back to 1980. It's been out  
21 there for 28 years and so we're applying the 21st Century science  
22 to a regulation that is 28 years old and I may be the dumbest guy  
23 in the room, but I know that can't be what they meant when they  
24 put it out because they -- it's 28 years down the road.

25                  THE COURT: Which regulation are you talking about?

MR. CROCKETT: The 404(b)(1) guidelines, this guideline, this structure and function guideline, is that old.

THE COURT: Right.

MR. CROCKETT: And so it's a moving target at all times and at any point in the game you can stop it in place and criticize it and that's a scientific method, but I mean it's not just, you know, a wing and a prayer. They've got people together to do the best they could. They were already going down this road.

I heard it said earlier that this was a shortcut, but there was no cut. It was -- they were back there already working on a broader package and because of -- you know, because Mr. Sudal sat in court and heard that, you know, his permits were no good, I don't think it should surprise anybody that he went back and turned up the heat a little bit and he got an interim assessment because that's human nature, but that is a work in progress and the Congress, I believe, has entrusted how to do that work in progress to them.

We can disagree on that, but that's -- for purposes of a preliminary injunction, I certainly believe they're due deference on the decision and especially in a cutting area like this, but my client, we just did what we were asked to do.

The last time -- or one thing I do think is important to point out, there is no evidence the Corps didn't follow the 404(b)(1) guidelines. There was a problem last time. They

1 didn't have anything but just professional judgment. I haven't  
2 heard, except the function and structure part being challenged  
3 here today, and so that and the IFFA really are what's in play  
4 today, but the Corps also had -- you know, when we talk about  
5 environmental harm, the record also includes the 401  
6 certification from the West Virginia DEP. It includes the CHIA.  
7 It includes -- there's -- I'm sure it includes the MPDES permits.  
8 There are a lot of other people out there who watch this.  
9 They're wanting to try and turn this into some kind of  
10 Armageddon, but I believe you will never learn to take the next  
11 step if somebody doesn't go out and do what Fola is doing.

12 Harm. Harm. Oh, harm to the environment. I mean, as I  
13 just said, there are agencies out there that watch that. There  
14 are rules on that. It was vastly overstated here today.

15 We heard evidence over the last three days of some of the  
16 aspects of this. You know, we heard that you had to have 20- or  
17 30-year forest growth and the thing has been timbered twice in  
18 the last ten years. I mean it's -- this is an active production  
19 area here. The forest, it comes and it goes. It's always  
20 influx. It's -- I just think it's been overstated horribly as to  
21 what exactly, you know, is going to be the harm.

22 Well, will this stream have grass beside of it? Sure, but  
23 it won't have grass forever. We heard testimony that it's going  
24 to have trees beside it, and tree canopy, within a reasonable  
25 period of time. So the harm, what harm we have, this will fix.

1           And it doesn't have to be perfect. It doesn't have to be  
2 the same. It just has to be -- result in no significant  
3 degradation.

4           Harm to Fola? Well, Fola just loses -- loses money. That's  
5 what Fola does. Fola loses money, but its -- I mean its -- I  
6 mean its employees already are in a situation where they're sort  
7 of past the economics of where you keep people in full  
8 employment.

9           Those people -- I heard it said sometime in the hallway  
10 during this that it's not about jobs. Well, yes, it is about  
11 jobs. They're scared to death about their jobs.

12           You heard three of them. I'm sure they -- if I could pick  
13 anyone else out, I'm sure they'd come up and tell you about their  
14 jobs. Your Honor, a short layoff, a long layoff, and we're  
15 already spiraling down. That's the testimony. We're not meeting  
16 orders now and it's getting worse. It's not a slight problem.  
17 It's a big problem.

18           I think we're up to about a quarter, over a quarter of the  
19 orders already, not being filled. The company can't operate like  
20 that indefinitely. It just simply cannot do that and the -- so  
21 the harm to the employees is really direct. It's imminent and  
22 they need some relief and we didn't come in here asking for the  
23 moon.

24           We didn't come in here and say we need every -- all of these  
25 valley fills. We just asked for the ones that we thought that we

1 could get through this coming year with full employment and  
2 making our orders because those two concepts are inexplicably  
3 connected. If you are not filling your orders, you're not  
4 getting the income that you need to keep the full employment.  
5 You need places, you need customers, and that's what adds up to  
6 employment and that's what they need to do that this next year.

7 There was -- Joe said that Clay County may be hurt. 65  
8 percent of the budget is tied to this company. I think that the  
9 Court can take judicial notice that 65 percent of any county's  
10 budget is going to hurt, especially in an area like Clay County,  
11 which is already hurting, and it's a big additional hurt to them  
12 and that hurt goes on down.

13 Mr. Linkinoggor testified that that budget is used to  
14 provide the extra stuff for the school kids. The school budget  
15 may come through the State, but, you know, activities, library  
16 books, things like this, that's what they have to fund with that.  
17 The basic public service. I know you know these things, but 65  
18 percent in this county is tied to this operation and that is a  
19 tremendous, tremendous harm to the public interest.

20 Judge, I'm not going to -- I'm sure I'm over my time.  
21 Again, I don't know what Fola can do. They've done everything  
22 that's been asked of them by everybody. They've gone the extra  
23 mile. They started this four years ago in anticipation so it  
24 could be done right. They are doing the best that is humanly  
25 possible and I think that they can't -- you can't really require

1 more of them than that and, in this case, when you balance it all  
2 out and you look at what will regulatory agents have said about  
3 the harm and give them the deference that they're due, that in  
4 this case the injunction should not enter to avoid the horrific  
5 harm that will happen if it does. Thank you, Judge.

6 THE COURT: All right. Thank you.

7 All right. The moving party gets the closing.

8 MR. LOVETT: I'll make it very brief, Your Honor. If I  
9 can just respond here, I think that we took care of Mr.  
10 Crockett's harm problems by asking the Court to stay a portion of  
11 the order on those two fills.

12 THE COURT: You're talking about valley fill 2 and  
13 valley fill 3 and --

14 MR. LOVETT: I'm not sure. From the testimony -- yes,  
15 those two fills, Your Honor.

16 THE COURT: All right.

17 MR. LOVETT: And if the Court agrees to do that, I  
18 think that probably the mining company and the plaintiffs would  
19 get together and agree about specific borders or boundaries for  
20 that work to occur. We've talked about it in the past before  
21 this hearing today.

22 You know, it's true the agency gets discretion in its  
23 decisions. There is no question about it, the administrative law  
24 is clear, but the Court is not required and, in fact, may not  
25 write the agency a blank check. We cited it in briefs before,

1 but it's worth bringing up again, Motor Vehicle Manufacturers  
2 Association v. State Farm says an agency must explain the  
3 evidence which is available and must offer a rational connection  
4 between the facts found and the choices made. There were no --  
5 that's what the Corps utterly failed to do here.

6 In terms of the monitoring -- let me go back then. Both Mr.  
7 Crockett and Ms. Morris told us that this is a science in its  
8 infancy. We agree with that and that's precisely when an  
9 environmental impact study is appropriate. If not here, I don't  
10 know where one could require an environmental impact study.

11 The standard, of course, is that if an act -- if a proposal  
12 may have significant impact on the environment, the Corps must  
13 prepare an environmental impact study. It's -- if not here,  
14 where? That's -- it's just because this science is in its  
15 infancy that an environmental impact study is required.

16 Back to the monitoring. The monitoring is also here and  
17 assessed with the IFFA. So if the IFFA is not valid, neither is  
18 the monitoring plan. The monitoring plan, of course, only  
19 extends for ten years.

20 You heard testimony here today about -- or during the  
21 hearing about the large woody debris and, you know, we don't know  
22 what this will look like and just because it looks one way in ten  
23 years, of course, doesn't know it will persist over time. We  
24 don't know. And monitoring something that is so unlikely, we  
25 think it is wasteful, in any event, especially with the way it

1 will be analyzed with the IFFA.

2 Now Mr. Crockett says Fola played by the rules. It may have  
3 in some sense played by the rules, but we had a hearing in this  
4 court two years ago, I think, and we explained, tried to explain,  
5 and I know that Mr. Crockett was here for that hearing. Dr.  
6 Palmer testified that there are ways to do this. Fola isn't  
7 bound by the IFFA. Fola can go take these direct functional  
8 measurements in the absence of an IFFA. Permitting can continue.  
9 It's just that functional data will have to be available.  
10 Otherwise, the company and the Corps can't show there's no  
11 significant degradation to the aquatic ecosystems to waters of  
12 the United States.

13 So Fola in some sense may have done what it was asked to do,  
14 but what it's really asked to do under the law is to not degrade  
15 waters and to -- and the Corps must assure that function and  
16 structure are considered before it's issued. So Fola could have  
17 provided the Corps with a way to do that. It applied for this  
18 permit three years ago. It's had a long time and, in the time  
19 all this has taken, Fola could have had its permit, perhaps. It  
20 could have gone out and done these analyses. So I think it's  
21 time that the agency and the operators here understand that the  
22 law is clear and that they need to comply with it. That's all I  
23 have. Thank you.

24 THE COURT: All right. Thank you.

25 Well, I know this is extremely important to both sides.

1 It's very controversial and I've heard three days worth of  
2 testimony and dozens of exhibits and lots of arguments. I'm not  
3 going to make a decision on this until I'm confident that I'm  
4 making what I believe to be the best decision, but I'll do it as  
5 quickly as possible.

6 Mr. Crockett, I guess I'd address this to you and your  
7 clients. At this point, I intend to start working on this  
8 immediately. I've got a civil trial scheduled to start Tuesday.  
9 I fully intend and expect to have a decision by early next week,  
10 as early as I can.

11 In the meantime, I would like to request or, if necessary,  
12 direct if the company would feel more comfortable with that that  
13 no action be undertaken by the company under this permit until  
14 I've decided it.

15 Is that acceptable to you and your client or do you  
16 understand that that's -- I think it's important to preserve the  
17 status quo here until I rule on this one way or the other.

18 MR. CROCKETT: I understand that. I don't know how Joe  
19 felt when I rested. I didn't have a chance to run that by them.  
20 Are we talking about all stop or are we okay in the other part  
21 given the relief requested? I just don't know the answer.

22 MR. LOVETT: The relief that we're requesting, of  
23 course, is an injunction and we understand that you're already  
24 working in one fill and we limited your work area in the past by  
25 agreement and, as I understood the testimony, you can continue

1 working in that fill alone without layoffs until June of 2009.  
2 We intend -- I mean we intend that you be able to continue  
3 working. That was my understanding, to be able to continue work  
4 in that fill to maintain the status quo. So work in the area  
5 you're already working in until the Court rules.

6 THE COURT: Well, and then I understood you to say that  
7 you would except for any -- or stay work in the area of valley  
8 fills --

9 MR. LOVETT: Yes.

10 THE COURT: 2 and 3, which by my notes are in dark red  
11 as part of Ike Fork number 1.

12 MR. LOVETT: Yes, Your Honor, and I think that that's  
13 something that we need to discuss, exactly what the boundaries of  
14 that are, submit that to you before you rule, and I expect we  
15 could do it very quickly and, if you rule next week, I don't  
16 think there's much harm to the company to restrict them to the  
17 area they're already operating in for two or three more days.

18 THE COURT: Well, certainly, I invite the parties to  
19 talk about anything that would resolve this in the short-term.

20 In the meantime, at this point, as I've said, Mr. Crockett,  
21 I think all I can do is preserve the status quo, which would  
22 mean, frankly, I will do everything possible to decide this by  
23 early next week and I can't imagine that I won't decide it by  
24 then and so, in the meantime, I think to maintain the status quo,  
25 I'll just have to stop you from doing anything under the permit

1       in these areas either in the red -- or I guess it's already been  
2       agreed that you may continue working -- is that in valley fill  
3       number 4?

4                    MR. CROCKETT: That's 4.

5                    MR. LOVETT: Yes, Your Honor, and we have an agreement  
6        between the parties about the areas that they can work in.

7                    THE COURT: Well, then as long as it's consistent with  
8        that agreement, I certainly don't intend to stop anything that  
9        has already been agreed by the parties to be acceptable activity.

10                  MR. CROCKETT: I understand, Your Honor. Your first  
11        question is to ask me what my client would do and I haven't had a  
12        chance to talk to him yet.

13                  THE COURT: Take a moment then to see if we're clear  
14        about that.

15                  MR. CROCKETT: Before I do that, I want to make sure  
16        that everybody understands what the evidence was about the status  
17        quo. It's not like we have full employment until June. It's --  
18        June is the outside limit.

19                  THE COURT: Oh, I understand.

20                  MR. CROCKETT: Okay, and that's not with -- you know,  
21        that's reducing production all the time. We don't need another  
22        order, Judge. We'll just stay put until we hear from you.

23                  THE COURT: All right. That will be good.

24        All right. Is there anything else we need to do or to  
25        address in the case? If not, first, let me thank all of counsel

1 for your presentation in this case. Obviously, we took longer  
2 than we thought, but I appreciate that counsel worked diligently  
3 to get the evidence before the Court.

4 Also, I want to thank all the people who have been here as  
5 part of the public. I know there are strong feelings on both  
6 sides. Obviously, we've got a lot of people who are coal miners  
7 or connected to the company that have a lot at issue here.  
8 Likewise, there are people who feel strongly about the  
9 environmental issues here.

10 I appreciate that you've all done what I asked in the  
11 beginning, which is to be quiet and respectful during court. I  
12 think that's commendable on all sides and I appreciate it. I  
13 hope that it persists in the future no matter what I do with this  
14 and probably no matter what the Court of Appeals does. Clearly,  
15 this is an area that's going to be in dispute and highly  
16 controversial and decisive, but there's no reason in the world  
17 that we can't be respectful to each other and continue trying to  
18 work to a solution that satisfies everybody.

19 I don't pretend to think it comes from this bench. I'm just  
20 a judge. All I can do and should do is apply the law to the  
21 facts and arguments I have before me and I would implore those  
22 who have the policy making opportunities, whether they're in the  
23 regulatory agencies or elected officials, to try to start working  
24 to bridge these gaps. There's no reason in the world that we  
25 couldn't find, with the right leadership, some common ground to

1 help avoid this stuff being caught up in court all the time.

2 With that, we'll conclude. Thank you for your work here  
3 today.

4 (Proceedings concluded at 1:56 p.m., October 24, 2008.)

5

6 CERTIFICATION:

7 I, Ayme A. Cochran, Official Court Reporter, certify that  
8 the foregoing is a correct transcript from the record of  
9 proceedings in the matter of Ohio Valley Environmental Coalition,  
10 et als., Plaintiffs v. United States Army Corps of Engineers, et  
11 als., Defendants, Civil Action No. 3:08-cv-979, as reported on  
12 October 24, 2008.

13

14 s/Ayme A. Cochran, RPR, CRR

February 27, 2009

15 Ayme A. Cochran, RPR, CRR

16 DATE

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